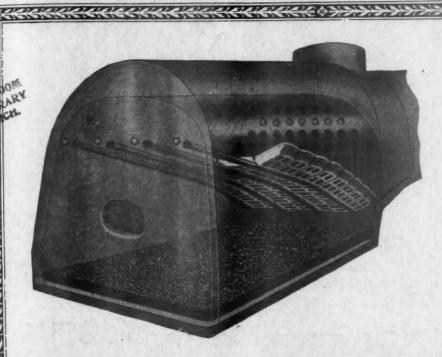
RailwayAge

FIRST HALF OF 1923-No. 30

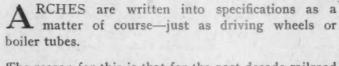
NEW YORK-JUNE 30, 1923-CHICAGO

SIXTY-EIGHTH YEAR



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way Age

In an editorial the New York Herald makes a plea for individuality in express trains, urging that every limited train

Individuality in Trains

be given a name. We agree in general with the Herald's idea but it seems to us that the practice of naming trains has gone about as far as it can under present conditions. There are more

names for trains now than can be assimilated by the public. Outside of a few "crack" trains on each road, few of the name-bearing trains are known to fame. Yet, if more trains had names and if all the names were generally known-and used-by the public, the roads would find it much easier to keep their individuality in the public mind-something which may well be done by those roads which are not enthusiastic about extensive consolidations. The great trouble is that a train needs something more than a name to give it individuality. Over in England the railway companies order trains-not passenger cars-from the builders or from their own shops. The result is that each train has an individuality of design; it looks different from other trains. Some of these trains in England are articulated—that is, one truck serves to support the ends of two cars so that under a seven-car train there are but eight trucks; other trains are painted in other than standard colors; almost every specially-built train has some features which distinguish it, even to the most casual observer. The result is that the train has an individuality which impresses itself not only on the passenger but on anyone who sees the train. Some railroads on this continent used to follow somewhat the same policy of making important trains individual in The practice, appearance as well as in speed and service. however, has been almost discontinued and we may well pause to reflect as to whether this act on has, all things considered, been wholly wise.

In view of the immense amount of drilling, reaming and milling work done in railroad machine shops, it is of the

> Cutting Tools

utmost importance that the cutting tools be kept sharp and in the best possible condition for efficient cutting. The day of sharpening even so simple a tool as a twist drill by hand grinding

has long since past, the operation being more quickly, cheaply and accurately done on a modern twist drill grinder. In the case of reamers and milling cutters, it is impossible to get the maximum effective service or life out of these tools unless they are sharpened on one of the plain or universal grinding machines designed in accordance with correct principles especially for that purpose. Plain cutter and reamer grinders are available for simple operations such as grinding straight, spiral, bevel or angular milling cutters. straight or taper reamers; shell or end mills and similar tools. Universal grinders are used to sharpen straight, taper or rose reamers; bevel, spiral, form, or end-milling cutters; taps, countersinks or counterbores. Universal grinders can be set up for the accurate grinding of straight or taper arbors, keys, gages, etc. Holes in cutters, or other small internal grinding jobs are easily handled. By using the vertical feed, surface grinding operations can also be performed. The universal grinder is a necessity wherever there are a variety of cutting tools to be cared for, and the cost of installing this machine will be paid for many times over in the increased production and longer life of cutting tools, decreased power consumption and cost of operation; also a noticeably better morale among the workmen who have not the incentive to get results when handicapped by dull tools. In using cutter grinding machines it is a mistake not to secure all the attachments needed for the various kinds of work, and particular attention should be given to selecting grinding wheels of the correct size, shape and grade for the particular operation on which it is to be used. In general, it is best to benefit by the advice of the manufacturer as to type of grinding wheel and method of set-up.

An opportunity is offered the railroads, through the International Railway Fuel Association prize contest for the best

on Fuel Conservation

paper on railway fuel conservation, A Prize Contest announced elsewhere in this issue, to learn something of the extent to which their locomotive and train service employees are really interested in this im-

portant subject. A large part of the effort put forth to some extent on most railroads to get the maximum return in tonmiles from each ton of coal purchased, has been directed toward the men who handle the throttle and the scoop. Almost no officer or employee, however, is free from some measure of responsibility for the conservation of the railway fuel supply and the extent to which this responsibility is met, particularly by operating officers and executives, has a tremendous influence on the results likely to be obtained. The expression of opinion from the men who directly conduct the operations in which 90 per cent of railroad fuel is consumed, should, therefore, be of great interest to these officers. Constructive suggestions of the greatest value may be obtained from these men with respect to their own operations and the executive and operating officers may also get a new perspective of their own responsibility which will be of incalculable value to them in shaping their future policies. It is to be hoped that every railroad in America will take measures to stimulate a live interest in this contest among their own train service employees.

In a discussion of one of the topics at the Chicago meeting of the Mechanical Division, attention was directed to the

Counting the Cost

importance of mechanical department officers possessing a full knowledge of all costs-not only the purchase price but also the cost of maintenance and operation. In this particular instance

reference was had to determining the real value of certain details of locomotive design and various accessories. The underlying thought, however, is just as true and just as im-

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portant in innumerable places—detailed costs in connection with shop operations and in the car department are fully as essential as those in connection with locomotive operation and maintenance. Initial costs, certainly as far as purchased material is concerned, can easily be obtained. Direct labor costs also could be readily obtained for a small expenditure, but in railroad accounting they are ordinarily lumped together under certain general charges and not accurately distributed in detail. When it comes to indirect costs, whether of overhead, labor or miscellaneous material, the available knowledge is commonly too vague and too general to be of any real value. In railroad operation statistics and costs far too often are looked upon as necessary evils and kept solely as a basis for making up certain federal or other reports that are required to be filed according to law. It is feared that certain of this data is of as little real value to regulating bodies as it is to the railroads themselves. Unless data is used, as well as obtained, the time spent in securing it simply is wasted effort. The application of full and accurately compiled cost figures might and should be the contributing factor in deciding upon the adoption of various details of design. As an example, the additional initial cost of a superheater may be known and possibly in a general way something in connection with the costs for maintenance in engine terminals and in the back shop when the locomotive is overhauled. On how many roads, however, are even fairly approximate values of fuel savings available? A criticism is often made of certain devices that they add considerably to maintenance costs. There is often much truth in this claim although it is frequently made without an accurate knowledge of how much this addition amounts to. The other side of the balance sheet—the gain from increased efficiency and economy-are generally guesses or rough estimates. Without a broad knowledge of the various cost facts in detail, decisions must be made on the basis of general experience, possibly with more or less prejudice, which does not insure that the decision is the right one.

President Harding on Railroad Consolidations

PRESIDENT HARDING, in his address at Kansas City on June 22, expressed very emphatically his opposition to government ownership of railroads. With a consistency not shown by all public men, he opposed certain policies which would tend to bring about government ownership. He referred disapprovingly to schemes for securing large and unwarranted reductions in the valuation placed upon the railroads by the Interstate Commerce Commission. He pointed out clearly that it is vital to the future prosperity and progress of the country to have adequate development of its means of transportation, and that it cannot have this unless it lets the railways earn net returns that will be attractive to investors.

At the same time he emphasized the view that to allow the railways to earn enough to provide adequate transportation, without allowing them to charge rates that will impose an undue burden upon the public, presents a problem. The country, he contended, cannot afford to have any considerable amount of its existing railroad mileage torn up, but to provide earnings sufficient to enable a large mileage of weak lines to maintain and increase their service, would involve fixing rates which would enable the stronger roads to earn too much and would be unduly burdensome to the public.

The President believes with Senator Cummins that the

best solution of the problem presented by the transportation situation is the consolidation of the railways into a comparatively small number of large systems. He would merge weak railways with strong railways and then make rates that would enable the consolidated systems to earn returns which would be attractive to investors. It has been widely reported that the President advocated compulsory consolidations

Careful reading of the complete text of his address fails to disclose any specific declaration in favor of the exercise of governmental compulsion. He called attention to the fact that Transportation Act makes consolidations "permissive rather than mandatory." He said that there appears to be no "constitutional inhibition" upon voluntary consolidations, but that "the problem of reconciling the interests of the hundreds of different ownerships and managements of lines to be merged into systems has proved a task for which no solution has been found." He referred to the fact that consolidations of the English railways have been brought about under a mandatory law. He said it is "being seriously proposed that the next step be to further amplify the provisions for consolidation so as to stimulate the consummation," and that it is his expectation that legislation to this end will be brought before Congress at the next session. To "stimulate" and to "compel" are two quite different things. The government undoubtedly can so draft and administer legislation as to stimulate consolidations. It cannot constitutionally compel them as long as the railways are privately owned, and the President when he made his address apparently meant tacitly to recognize this

It will be very difficult for anybody who is not opposed to any further consolidations of the railways to find any very serious weaknesses, from the standpoint of the public interest, in the part of his address he devoted to the discussion of this subject. The President mentioned approvingly "the program of consolidating all the railroads into a small number of systems," but how many systems he would regard as a small number he did not say. He indicated that consolidations would bring economies in operation, but did not put exaggerated emphasis upon this point. He based his argument for consolidations almost entirely upon the ground that the differences between the earning capacities of the many existing railways are so great that on any rates which are entirely fair to the public, some railways will earn large returns while others will not be able to earn enough to provide good and adequate service for the people along their lines. The weak and the strong should be so consolidated as to remedy this situation.

This part of the President's argument is strong because unfortunately it is based upon undeniable facts. It is true that in almost every part of the country there are, for various reasons, some railways that are financially weak and others that are financially strong, and that this makes the problem of regulation of rates much more difficult than it otherwise would be. Just how to remedy the condition, however, it is not easy to say. Some stimulus to consolidations was meant to be given by the "recapture" provisions of the Transportation Act. Under those provisions if one railway earns 8 per cent on its valuation, and another 4 per cent, the former must pay over to the Interstate Commerce Commission, acting for the government, one-half of its earnings in excess of 6 per cent.

If the two railways should consolidate and the consolidated system should earn 6 per cent, it would be able to keep all of its earnings and to this extent the owners of the consolidated system would be better off than when they owned the railways separately. This affords some direct incentive to consolidations, and in the absence of incentives consolidations will not be voluntarily made. In any event, they

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will not be voluntarily made unless the owners of the roads consolidating believe they will gain by it. No strong road will buy a weak road and pay more for it than it believes it is worth, and no weak company will sell to a strong company for less than it believes its property should bring. There is no principle of public policy, morals or constitutional law which would justify compelling the owners of a prosperous railway to buy another railway which they did not want or at a price greater than they were willing to pay.

Disclosure of the nature of the legislative stimulus to consolidations which President Harding indicates will be introduced in Congress at its next session will be awaited with some misgivings and keen interest. The Railway Age believes that some modifications of the consolidation provisions of the Transportation Act are desirable. They include a provision to the effect that if two or more railways are merged the total securities of the consolidated system shall not exceed its total valuation. This provision should be repealed because it is an obstacle to consolidations, and the Interstate Commerce Commission should be given exactly the same authority over the issuance of securities in the case of a consolidation that it has over the issuance of securities when consolidation is not involved. The existing law requires the commission to make a comprehensive plan for railroad consolidations, and this is interpreted to mean that all mergers must be effected in strict accordance with this

The law ought clearly to permit the commission to authorize any consolidation which it does not regard as inimical to the public interest. No man or body of men is wise enough to work out a plan of consolidations for all the railways of this country which will provide for each territory the exact mergers which will be best for the people in that territory. Legislation which contemplates that, once a comprehensive plan of consolidations has been worked out, the consolidations authorized by that particular plan, and absolutely no others, will ever be permitted, is too inflexible and will tend to prevent many desirable consolidations instead of to promote them.

The railroad problem of the United States will not be solved by any program of consolidations, however well conceived or skilfully carried out. No matter how many or how few railway systems there may be, rates will have to be so regulated as to enable the railroads as a whole to earn larger net returns than they have in any of the last 10 years, except in 1916 and 1917, or the railroad problem will not be solved. Assuming, however, that the railroads as a whole will be allowed to earn a reasonable net return, a program of consolidations which would cause most of the short lines to be merged with large railways, and weak railways in all parts of the country to be merged on reasonable terms with strong roads, would be extremely helpful in solving the country's transportation problem. It would not effect the vast savings that many imaginative and uninformed persons believe, but if the systems formed were not too big and unwieldy it would promote economies in operation, cause the various lines to be more uniformly developed, and improve

The country needs to be warned, however, that railway systems can be made too large as well as too small and that great reductions of rates and vast increases in transportation service cannot be immediately made possible by the simple expedient of amalgamating a large number of railways into a few big systems. It would take years to carry out even the wisest conceivable policy of railroad consolidations. After the consolidations were formed, it would be years before large benefits could be derived from them. Meanwhile the railroad problem of this country must be dealt with on the basis of actually existing conditions and not the basis of conditions that may some time be brought about.

the service rendered to many communities.

Superintendents' Relations With the Public

THE SUGGESTION was made repeatedly at the recent convention of the American Association of Railroad Superintendents at Kansas City that one of the most important duties of the division superintendent today is the promotion of friendly relations with the shippers and other people along The criticism was made that the superintendent has considered his duties to be confined within those limits of the right-of-way fences and has concentrated on the direction of operations within those limits, leaving to the traffic department and others the problem of establishing contact with the public. However, new problems are continually arising in the railway field and one of these in recent years, the importance of which is only now being recognized, is that of promoting cordial relations with the people of the territories served by the railways and of disseminating facts concerning the railways and their ability to serve them.

No one can do this more effectively than the division superintendent. He is a local officer with an opportunity for frequent intimate contact. Furthermore, most of the problems of the shipper are of a character which the superintendent can handle more effectively than anyone else. This was borne out by a recent analysis of a large number of complaints received by the Interstate Commerce Commission last year which showed that 95 per cent of them could have been settled by the local division officers if proper contacts had been established. The local agent can become an influential representative of his road in his town and the division superintendent, as his superior, can do even more effective work.

That the superintendent has not measured up to his opportunities in this direction is evident. However, this criticism applies to the higher officers as well. Furthermore, in placing this new duty on the division superintendent, the general officers have also commonly failed to realize that the superintendent is today the most overloaded man in the organization.

His first responsibility has always been and still is the direction of many operations which enter into the production of transportation and if he is to give attention to shippers as well as to the employees, he must be given sufficient assistance to enable him to assume these new duties without detriment to the running of the road.

The railways are awakening rapidly to the fact that they have much in common with the users of their service and that much can be accomplished by considering the problems of transportation as belonging jointly to them and their patrons in endeavoring to enlist the co-operation of the shippers in the most efficient use of transportation. Thus, one railway has instructed its superintendents and general superintendents to make personal calls upon every important shipper on their lines so that he may present the American Railway Association's transportation program for this year to them, acquaint them with the steps which the railways are taking to provide adequate service and enlist the shippers co-operation in storing coal, in loading cars to capacity and in otherwise utilizing railway facilities most efficiently in order that, through their combined efforts, the needs of the country can be met in full. This work among the shippers can be done more effectively by the superintendent who is responsible for the service given them than by representatives of the traffic department who are received as salesmen or by representatives from the general offices who lack the intimate contact with conditions. The contact of a division superintendent with his shippers is a valuable one to the railway and one which should be fostered. It can best be encouraged by making a study of the present demands upon the superintendent's time in order that he may be allowed sufficient supervisory assistants to enable him to take on these additional duties without detriment to his operating responsibilities.

Remarkable Increase in Freight Car Efficiency

THE SUCCESS of the railways in handling more freight business thus far this year than ever before is almost entirely due to their success in speeding up the movement of freight cars. A striking fact disclosed by statistics re-cently compiled, to which public attention has not been called, is, that the average miles traveled by each freight car in the first four months of the present year far exceeded all previous records and was almost 20 per cent greater than the average miles traveled by each car in the corresponding period of any of the immediately preceding four years. The average miles traveled by each freight car in the first four months of each year beginning with 1919 is as follows: 1919, 20.8 miles; 1920, 22.1 miles; 1921, 21.2 miles; 1922, 22.3 miles; 1923, 26.4 miles. The average miles per car per day in these months of 1923 was 27 per cent greater than in 1919 under government operation, 19 per cent greater than in 1920, 24.5 per cent greater than in 1921, and 18.4 greater than in 1922

The most remarkable figures are those for April, the last month for which the statistics are available. The average miles traveled daily by each car in that month exceeded the record of 1919 by over 33 per cent, that of 1920, when the outlaw switchmen's strikes interfered with operation, by 43 per cent, that of 1921 by 32 per cent, and that of 1922 by 36 per cent.

by 36 per cent.

The significance of these figures can be appreciated only when it is considered that a given increase in the average service rendered with each car is equivalent to a proportionate increase in the number of cars. In the first four months of this year there were actually less freight cars in service than last year, the large number of new cars acquired having been exceeded by the number retired from service. The increase of 18.4 per cent in the average number of miles traveled by each car daily, however, was roughly equivalent to an increase of 425,000 in the number of cars in service. Practically the entire increase over previous years in the amount of freight handled was due to the speeding up of cars, since, while the average tons loaded per car was greater than in 1919 and 1922, it was less than in 1920 and 1921. The complete wiping out of the car shortage was due to the With the demand for the movement of freight so large as it was, the car supply would have proved wholly inadequate if there had not been this large increase in the average daily movement of cars.

The question will naturally be raised as to why the railways have been able to secure this remarkable increase in the movement of cars. It has been due to several causes. First, in spite of unfavorable conditions, there has been, year by year, some increase and improvement in physical facilities. Surprising as it may seem to many people, and in spite of the effects of the shop employees' strike, the railroads have had more locomotives in condition for service than in either 1919 or 1920. The number of locomotives in bad order in 1919 under government control was 27 per cent of the total number and in 1920, largely owing to the effects of government control, it was 26 per cent. In the first four months of this year it was only 25 per cent. The actual number of freight locomotives in condition for service was

about 2,000 greater than in the entire year 1920. Secondly, operating conditions have been unusually favorable. The weather in the winter and spring months was comparatively good and there have been no labor troubles. Third, as a result of the strengthening of the Car Service Division of the American Railway Association there has been a better distribution of cars throughout the country and better coordination of the work of the various railways.

It is a remarkable fact that at this very time when the railways are making the best record in their history in moving cars, a record which far surpasses that made under the system of "unification" and car pooling adopted under government control, there should be a strong agitation for the revolutionary Warfield plan of centralized ownership and pooling of freight cars. What could and would be accomplished under the Warfield plan is a matter of theory, while what is being accomplished by present methods is a matter of incontrovertible fact. President Harding, in his speech at Kansas City, opposed government ownership of railroads because it would destroy the initiative and rivalry in efficiency which can be secured only under private management. At the same time he made statements which might be construed to imply a leaning in favor of car pooling.

The President's argument against government management applies with almost equal force to the Warfield plan of car pooling.

New Books and Special Articles of Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books

The Railroad Labor Board; Its history, Activities and Organization, by Joshua T. Bernhardt. Institute for Government Research. Service monographs of the U. S. Government, no. 19. 83 p. Published by the Johns Hopkins Press, Baltimore, Md.

Trade Association Activities and the Law, by Franklin D. Jones. Especially Chapter 10 "Traffic and Transportation," Chapter 13 "Speeding Up Distribution," and Chapter 16 "Collective Action Prohibited by Law." Appendices contain Federal statutes affecting trade association activities. 360 p. Published by the McGraw-Hill Book Co., New York.

Periodical Articles

Berlin to Bagdad Brought up to Date, by Frederick Simpich. Nation's Business, July, 1923, p. 20-22.

The Chester Concession Under Fire, by Laurence Shaw Moore. Map of the "steel arms of the Chester concession" and other railways in Asia Minor, p. 522. Asia, July, 1923, p. 521-524, 538.

Long Locomotive Runs [in the United States]. Baldwin Locomotives, July, 1923, p. 35-46.

The Other Side of Reform. An anonymous ex-reformer discusses the types of persons addicted to professional reform and some of the reasons why. Saturday Evening Post, June 23, 1923, p. 3-4, 146, 149-152.

Salaries for Executives, by Charles T. White. Administration, June, 1923, p. 641-645.

A True Picture of the Railroad Situation Today, by Arthur J. Neumark. Magazine of Wall Street, June 23, 1923. p. 298-301, 352, 370-371.

Why the Middle West Went Radical, No. 1, by Chester H. Rowell. Middle-western reactions to the Transportation Act, and other legislation. World's Work, June, 1923, p. 157-165.

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Letters to the Editor

The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters-about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

The Actual Facts

About Valuation

TO THE EDITOR:

I noticed an Associated Press article in the daily papers on May 25 entitled "Rail Valuation Body is Formed." Having acquired considerable knowledge with respect to the building and repair of railroad equipment and its valuation from nearly 23 years' service in the equipment department of the railways and nearly six years in the valuation division of the Interstate Commerce Commission, I have certain facts which contradict the insinuations and impressions that the above named rail valuation body is trying to impress upon the people. It may not be amiss to state that I have served in every capacity in the equipment department from car repairer, car builder, foreman and general foreman to master car builder and superintendent of the car department. My experience with the Interstate Commerce Commission dates from April 1, 1914, to January 31, 1920. My position was that of senior inspector of car equipment, in which capacity I had charge of this branch of the service in what was known as the western district, with headquarters at Kansas City.

The act of Congress authorizing and directing that a valuation of the physical properties of the carriers be made and setting forth certain principles to be followed and the Classification of Investment in Road and Equipment of Steam Roads were our guide in this work and in my capacity of senior inspector of car equipment for the above district I set to work in conjunction with others of that district to analyze and determine the meaning of the act and the classification above referred to, with a view of handling my portion of the work strictly in accordance with the intent and purpose of the law.

The principles set forth in the act authorizing the valuation are very clear and definite as to the means to the end but the application of the principles to the physical properties is another and radically different problem. In the first place only those with a thorough knowledge of the physical properties to be considered and a thorough understanding of the principles laid down could in any manner be able to determine the result sought to be obtained. Senator Robert M. La Follette is father of this act. However, I question his ability to apply the principles to the physical properties and

arrive at the results sought to be obtained.

It is stated in the Associated Press article that the "purpose of the meeting is to promote and protect the public interest in the valuation of railroad property now being made by the Interstate Commerce Commission, particularly for the purpose of preventing excessive appraisal of the properties which will result in unreasonable charges for transportation and to take steps, through the Interstate Commerce Commission and the courts and elsewhere, to 'require' the commission to act in strict accordance with the provision of the interstate commerce act in determining the valuations of the railroads." In my work in the Division of Valuation I know of the efforts of the commission to make the valuation absolutely fair and just as between the railroads and

the public. I have particularly in mind the many conferences with the late Judge Prouty, director of valuation, whose great ability and whole soul and body were thrown in the valuation work with a will and determination to conduct the valuation in a manner of justice from every standpoint and be able to make a report to stand the criticism of the courts and the people. As to his ability no one who knew him in life will dare raise a question and as to his understanding and instructions with reference to valuation, everyone who came in contact with him will bear me out in my statement that his whole purpose was to carry out the law in every detail and make the valuation in accordance with the law and the conditions as they were found in the field. I say this in defense of the Interstate Commerce Commission and for the purpose of having the general public know from one experienced in both railroad work and valuation work that the Interstate Commerce Commission has been more than fair with respect to the interests of the public.

Insofar as the Western district is concerned while I was with the valuation division, I personally inspected and supervised the inspection by others of passenger, freight, work and floating equipment and schooled my assistants in the methods of determining the service condition of each unit of equipment inventoried by them. We endeavored in every way to be absolutely fair in setting up the service condition per cent which, after all, is the main thing in determining the value of property as inventoried.

In setting up reproduction and reproduction less depreciation and making the final engineering report to the commission at Washington, I did a great portion of this work personally and directed that done by my assistants. This was done by me and my assistants for the reason that, having knowledge of equipment as we saw it in the field, we were better able to determine the reproduction than anyone else. The reproduction of equipment as set up in the Western district was not based upon haphazard information but was on the basis of the average cost of like equipment over a period of years from 1895 to 1914, inclusive, adjusted to the average cost of like equipment for the period of 1910 to 1914, inclusive.

In setting up the reproduction of equipment but little consideration was given by me to the general cost as reflected by Order No. 8, but instead the reproduction was set up on the basis of the average cost for like equipment purchased by the various large roads in this district. In order that the reproduction might be set up on the best possible supporting data, I personally compiled the first system of cost data on the per pound basis that was ever used in connection with the reproduction of any class of railroad equipment. This system is now used by the American Railway Association, Mechanical Division, to figure the reproduction in the settlement of equipment destroyed on foreign lines, it having been decided that this is the most equitable method for such settlement. The system is also being used by the Railroad Presidents' Conference Committee, with some little refinement, as they, too, have found it to be the most just and equitable means in determining the reproduction value of equipment.

In the application of the factors found by this study there were many instances where equipment was reproduced at a figure considerably less than shown on Order No. 8, in which was set up the original cost. On the other hand, there were many instances where the reproduction under this method showed the reproduction cost to be greater than that shown by Order No. 8, as above. These variations were brought about largely through the varied conditions under which equipment was originally purchased. In other words, the difference was the result of the supply and demand. My experience is that under conditions where the demand was great the cost was highest and under conditions where the demand was less the cost was less. Our method, however, of setting up the reproduction wiped out these inequalities and placed a value on each unit of equipment on the basis of an average of the high and low cost over the long period of years mentioned above.

Our determination of the service condition of equipment was based upon the actual condition of each unit inspected and the condition of the equipment inspected was found to vary quite extensively due to the service in which it was employed. This condition was more apparent in open than in house cars. In placing the service condition upon equipment I have in many cases placed it 35 per cent or 40 per cent below straight line depreciation on the experience of the average number of years service life for equipment of like kind.

Exceptionally poor conditions were found more particularly in equipment operating on coast lines and especially where ballast or coal cars were used to haul shells for ballast and in coal fields where sulphuric acid was very pronounced. In the lake regions cars of the same type would have a service per cent condition sometimes far above the indicated straight line depreciation for equipment of like age. Service condition, too, was in many instances placed considerably below the average on account of light and inferior construction. On the other hand there were instances where equipment of superior design and construction would be given service condition considerably above the average.

The above, it occurs to me, should be sufficient to indicate to the most inexperienced layman the very great effort which has been made by the Interstate Commerce Commission through thoroughly experienced employees for every branch of the service to insure the absolute correctness and fairness of the valuation as authorized, and if the fact is borne in mind that the valuation of railroad properties has been made upon the basis of the average cost as of the period 1910-1914, inclusive, it can readily be seen that the valuation has been set up on the most conservative basis.

W. A. MITCHELL, Superintendent, Car Department, Missouri-Kansas-Texas.

Marketing Bureaus for Railroads

TO THE EDITOR:

Louisville, Ky.

Present indications point to a flood of adverse, if not radical, railroad legislation with the opening of the next Congress.

Present indications also point to a continuation of a sustained domestic business for the remainder of the year 1923, to the extent of actively employing all available transportation facilities, both in motive power and equipment. The rail carriers are adding to their motive power and equipment as rapidly as their financial condition will permit, but should economic and political conditions in Europe be composed, with an increased demand for our surplus products not only in Europe but in other foreign countries, it is apparent that the handling capacity of the rail carriers will be taxed to the limit.

With this outlook it is more clearly apparent that what the manufacturers and producers stand mostly in need of is additional transportation service, rather than additional transportation legislation; hence, the necessity for familiarizing the country at large, including the farmers, with transportation conditions throughout the United States, the vital need for adequate and sustained transportation service, and urging that railroad legislation be minimized until the Transportation Act has been given a fair trial under something like normal conditions, which, in reasonable fairness, will require a period of at least five years, beginning with August, 1920. This, of course, to the end that the railroads be placed upon a sound financial footing in order to enable

them to give the transportation service required by our present commerce.

The farmer is more interested in finding a market for his products and moving them promptly when ready for market than he is in the exact measure of the freight rate. A reduction in the rate is of no benefit to him if there are no cars available when he is ready to ship, or if there is not sufficient power to move the cars to market when loaded. The farmer's first problem, however, is to find a market for what he produces. If 15 per cent of his crop represents the profit on his entire crop and he is unable to market that 15 per cent he has made no profit. If Idaho produces an unusual crop of potatoes and there is an over-production of potatoes in the country as a whole, it is quite easy to attribute the inability of Idaho farmers to sell their potatoes at a profit to high freight rates and shortage of cars. This is also true at times with other crops, forest products and even manufactured products.

The manufacturers are probably more intimately familiar with transportation conditions and the need for sustained transportation service than are the farmers, and in order to reach the latter directly and to acquaint them not only with transportation conditions, but also with market conditions, it is suggested that each one of the larger railroads organize a marketing bureau, headed by a practical marketing expert and reporting directly to the president, for the purpose of establishing direct and close working relations with farmers and producers on its line and assisting them in finding a market for surplus products, either in this country or abroad. Such bureaus would not, of course, engage in actual buying or selling, but, being familiar with production, consumption and economic conditions throughout the world, it would enable them to give substantial assistance to, say, fruit growers in the northwest, wheat and corn growers in the middle west, and potato growers in the west and south, to find a market for their surplus products, if it is humanly possible to do so. With such organizations it will afford the farmers and producers on each line of railroad a point of intelligent and helpful contact with the railroads and a means of intimately familiarizing each with the needs and facilities of the other, and would obviate the necessity of the farmers taking their troubles to Washington or other political headquarters where they are at times not handled along practical and constructive lines.

Such marketing bureaus, forming a direct medium of communication between producers and the responsible head of the railroad, would serve to clear away a mass of misinformation that has heretofore existed between these two parties whose interests are so closely interwoven and so largely mutual. The railroad would be made to know what the farmer actually needed and the farmer and producer would be made to know whether his trouble was high rates, lack of cars or engines, or a lack of a market for the particular commodity he had to sell. At the same time he would have the assistance of an expert in finding a market for his commodity. Such marketing bureaus would also fit in with the general plan of co-operative marketing which is making rapid progress in popularity.

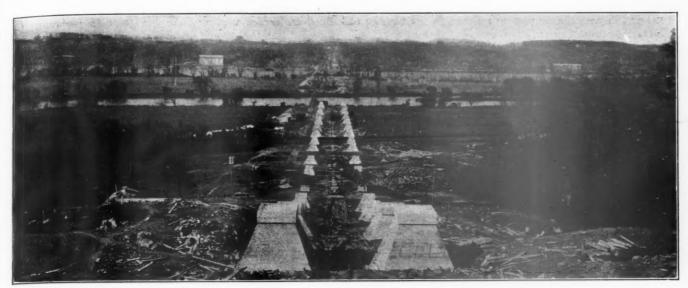
In the meantime, responsible railroad officials should answer all unfair attacks upon the railroads not only from those who have their own selfish purposes to serve, but also from those who are uninformed and need only to be enlightened. These replies to be most effective with the public at large should avoid personalities and acrimonious controversies, and instead their arguments should be confined to dignified and instructive presentations of facts, figures and economic conditions, their causes and effects. The railroads have a strong case and the public can be convinced of this fact if it is fairly and frankly presented in such a way as to be readily understood by the public at large.

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Practically One Mile from Abutment to Abutment at the Crossing of the Hudson River

Rapid Progress Being Made on Castleton Cut-Off

New York Central Pushes Work on New Line to Relieve Congestion at Albany—Line Half Completed

Since the inauguration of work on the cut-off of the New York Central south of Albany, N. Y., which was described on page 1246 of the May 27, 1922, issue of the Railway Age, rapid progress has been made on this interesting project. Approximately 50 per cent of the grading

One of the Concrete Caissons Used at Castleton

for the connections with the Boston & Albany and the West Shore railroads and for the new yards at Feura Bush have been completed. Foundations for the bridges and viaducts have been finished with the exception of the two westerly main piers which have only been completed to water level. Steel has been erected on the west viaduct and the erection of the east viaduct is just getting under way. The Castleton bridge and cut-off form one of the largest and most interesting undertakings from an operating and engineering standpoint that is under way on any of the railroads at the present time.

While popularly referred to as the Castleton bridge project, the work is in reality a cut-off resulting in a shorter line with lower grades and a large freight yard and terminal,

the expenditure for the Hudson river crossing amounting to approximately one-fifth the total proposed expenditure. The new project, incorporated under the name of the Hudson River Connecting Railroad, consists of a double track, high level bridge across the Hudson river about one mile south of Castleton, N. Y., connecting on the east end with double track branches to the Boston & Albany and to the New York Central main lines and on the west bank of the river with the West Shore railroad. About 27 miles of double-track



Erection of Steel on West Approach Has Been Completed

line are involved, on 18 miles of which grading is now being pushed. A large classification yard approximately six miles in length is under construction at Feura Bush where the cut-off connects with the main line of the West Shore to Buffalo. A new section of the Albany branch of the West Shore between Rayena and Selkirk is under construc-

tion, tying in with the connecting railroad in the vicinity of Selkirk. The project also involves considerable highway elimination work since over 20 highways cross the road at various points, grade crossings with which will all be eliminated.

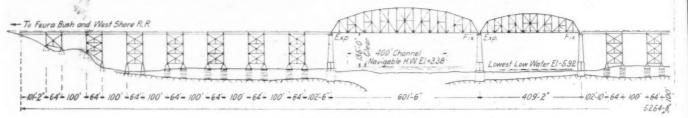
Operating Conditions at Albany Necessitated Changes

The development of this project is the result of a long standing need for relief from the operating difficulties imposed upon the New York Central by the physical conditions at Albany. At the present time, in addition to being a division point on the main line, Albany is also the point of connection with the Boston & Albany. All freight and passenger trains cross the Hudson river at this point on

Bush on grades varying from level to 0.35 per cent. On the east side the connection to the Central's main line will swing to the south, following along the edge of the bluffs to a junction at Stuyvesant about 9 miles from the bridge. Maximum grades on this line will be 0.35 per cent compensated. In order to obviate the crossing of tracks at grade, the eastbound connection will be carried over the main line at a point north of Stuyvesant and then brought to grade between the main line and the river.

Bridge Structure is about One Mile in Length

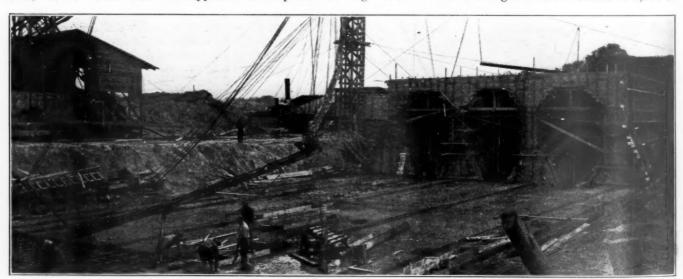
At the location of the bridge, it is necessary to cross a smaller channel known as Schodack Channel, an island, the



Elevation of the Castleton Viaduct

bridges of low vertical clearance while river navigation is such in the open season of nine months that the draws are open approximately 8 hours out of the 24. Westbound trains out of Albany have to overcome an elevation of 150 ft. in two miles with a maximum adverse grade of 1.63 per cent into the West Albany yards. Eastbound, Boston & Albany trains must also climb up out of the river valley against maximum grades of about 0.70 per cent. The West Albany yards are no longer capable of any further expansion. It is also necessary to break up westbound freight trains into sections, each of which must be supplied with a pusher to

main or navigable section of the river, a small point of land and an estuary by the name of Jolly's Creek. The main course of the river is confined within government dykes 1,075 ft. apart, within which and along the west dyke, a government channel 400 ft. wide is maintained. The river is crossed by two simple truss spans of 33-ft. panel lengths and measuring center to center of pier, 601 ft. 6 in. and 409 ft. 2 in. respectively, flanked on either end by long steel viaducts. The elevation of the base of rail is 148 ft., resulting in an under clearance of 135 ft. above navigable high water. The total length of the structure is 5,254 ft.



Pouring the Concrete Base Slab for the Coeyman's Creek Culvert

operate up the heavy adverse grade. During normal business and normal conditions the drawbridge at Albany is opened on an average of 40 times a day while the daily interchange of cars at this point is approximately 1,000 each way with the Boston & Albany and 600 with the Hudson River division of the New York Central.

The new connection will provide a somewhat shorter route with maximum grades westbound of 0.35 per cent and eastbound of 0.60 per cent, the latter being on the connection to the Boston & Albany at Post Road, about 4½ miles from the river. The river is crossed on a level grade after which the line runs for approximately seven miles to Feura

8 in. between abutment back walls and the steel tonnage required is 23,000. The foundation of the two main spans consists of three large partly reinforced concrete piers sunk to rock, and faced with granite from elevation minus 9.5 to plus 17. These piers are approximately 200 ft. high with bases measuring approximately 86 ft. by 35 ft. Test borings at the sites of the piers showed that rock existed at depths of 30 ft. at the east pier, 51 ft. at the center pier and 47 ft. at the west pier. Open cofferdam construction was therefore utilized for the east pier while caissons were used for the remaining two. Although the original plans called for steel caissons, some economy was effected by the use of reinforced

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concrete caissons of an elongated octagonal shape and poured in courses, from 5 ft. to 17 ft. thick. The caissons were divided into four compartments, each with its own mucking lock as shown in the illustration. A fifth lock was provided for the workmen. After the caissons had reached a bearing on the underlying slate, the compartments and shafts were filled with concrete, making the caisson one integral mass.

Ballasted Deck Construction

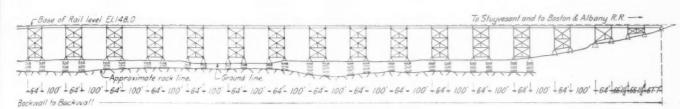
for Viaduct Superstructure

The superstructure of the steel approach viaducts consists of four lines of deck plate girders, 10 ft. deep, arranged in alternate 100-ft. intermediate and 64-ft. tower spans. Each

center to center, longitudinally and transversely, the elevation of the tops of the pedestals for the 20 towers mentioned being at the same elevation. The majority of the pedestals are carried on piles driven to rock; a few, however, were carried down to rock where this was found preferable, as for instance in crossing Schodack Channel. Near the abutments, excellent bearing was obtained on hard pan at shallow depths. All pedestals are seven ft. square on top with bases measuring from 16 ft. to 25 ft. square.

Heavy Construction on East Side of River

The Boston & Albany connection passes through a section of country of irregular topography, the general line of the



Elevation of the Castleton Viaduct

pair of spans is independent from the others in respect to expansion and stability. Because of the height of the structure, the possible effects of corrosion due to brine drippings and other factors, a ballasted deck was adopted as the most logical type of floor. This will be in the form of reinforced concrete floor slabs, 14 in. thick and carried up at the edges not only to retain the ballast but to provide a walkway on either side. To facilitate inspection, repair and painting, etc., narrow walkways, consisting of reinforced concrete slabs,

hills and ravines being at right angles to the right of way. This necessitated some heavy earthwork, confined principally to two large cuts and two heavy trestle fills, and involving the moving of approximately 1,000,000 cu. yd. from cut to fill. The heaviest cutting is through the bluff along the river where it is necessary to excavate to a depth of about 75 to 80 ft. to get to grade. This is followed by a small fill and a second heavy cut, both being in soil chiefly of a heavy indurated blue clay which gave considerable trouble because



Driving the Piles to Support Coeyman's Creek Culvert

3-in. thick will be supported along the base of the deck plate girders, on the outside of both sides of the structure and between each two girders. The main truss spans, in contrast to this construction, will have the common open deck of bridge ties, the dead weight of ballasted deck construction being too great to be economical since the main members of these spans are not subject to the same abnormal corrosive influences as the viaduct spans.

The foundation of the viaduct consists of 25 rectangular steel towers, 20 of which are of the same height, 117 ft. Each tower is supported upon units of four concrete pedestals spaced respectively, 64 ft. and 50 ft. 5½ in.,

of its toughness and required the development of a special blasting powder before it could be handled. This material was used for filling at Muitzes Kill and Bakers Ravine where fills of 400,000 and 300,000 cu. yd. respectively were required with maximum depths of 80 ft. High, construction trestles of local hardwoods and four lines of steel rails for stringers were erected across both of these ravines.

At Bakers Ravine a 6-ft. concrete arch 290 ft. long was constructed on pile foundations. However, unstable subsoil conditions at Muitzes Kill required that the foundations for the 18-ft. by 24-ft. by 280-ft. arch necessary at this point, be carried down 20-ft. to rock. This was done by pouring

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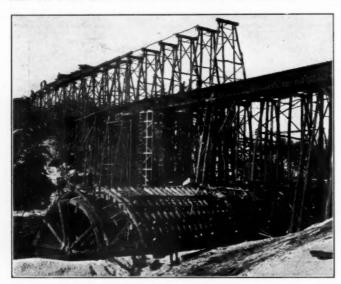
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pedestals upon which reinforced concrete girder construction and then the arch in the form of a stepped barrel, were poured. No actual construction work has been done on the connection to the New York Central which leaves the east abutment on a curve through a section of land which will require about 600,000 cu. yd. of excavation. The remainder of the connection passes along the bluff through a "finger" country and will be chiefly sidehill work of considerable magnitude.

Unusual Culvert Construction Problem

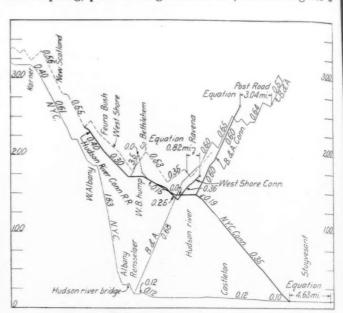
On the west of the river a fairly heavy cut about 45 ft. deep is encountered at the edge of the bluff and extending back for some distance in the table lands on this side. This



Muitze's Kill—Indication of Some of the Heavy Construction Trestle Work

is being excavated by a 110-ton drag line machine with a five-yard bucket which is excavating to grade as it goes, working inland from the river. The remainder of the main line of the Hudson River Connecting Railroad to its connection with the West Shore near Feura Bush as well as the work in the new yard is comparatively light cutting and

ley being of a treacherous and unstable nature. Measurements of the maximum flows indicated that an opening equivalent to a 50-ft. arch would be needed. However, because of the soil conditions at this point necessitating the use of piling, plus the height of the fill, the loading for a



Profile of the Castleton Cut-off in Its Relation to the Existing Lines

span of this size and likewise for two spans of an equivalent opening were prohibitive. It was, therefore, decided to erect a structure which would permit safe loadings and likewise be of such a construction that any possible failure due to uneven settlement, shifting, etc., would be obviated. The type of structure utilized consists essentially of a large reinforced concrete box culvert having three openings approximately 15 ft. wide by 22 ft. 6 in. high and overall dimensions exclusive of wing walls of 224 ft. by 71 ft. This culvert was located to one side of the existing creek bed, at right angles to the center line of the track and in a position to form a straighter flow of water through the ravine at this location. Uniform bearing was secured by pouring the bottom of the

Scale in Miles

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Main line

N.Y.C

Main line

N.Y.C

Mest Shore

Hudson River Conn.

Feura Bush

Rayena

The Castleton Cut-off in Relation to the New York Central, the Boston & Albany and the West Shore Line

filling, a considerable portion of it being handled with self-loading wheel scrapers.

However, on the connection to Ravena to replace the present Albany branch of the West Shore, there is one of the heaviest and most difficult pieces of earthwork on the entire project. This construction includes the crossing of Coeyman's creek on a fill about 75 ft. high, the creek being subject to heavy overflows in the spring and the soil of the val-

culvert as a reinforced concrete slab, 3 ft. 9 in. thick for the full base area of the structure and carrying it upon piles driven on 3-ft. centers. The bases of the side and intermediate walls were constructed of mass concrete keyed to the base slab and to the upper wall sections. The roof slab had a minimum thickness of 3 ft. and was heavily reinforced and tied in to the upper sections of the side walls. The method of construction was about as unusual as the struc-

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ly as es a n. ture itself. Because of the instability of the soil and the seepage of water, the area to be covered by the structure was entirely enclosed with interlocking steel sheet piling. The soil was then excavated to well below the base of the concrete slab after which piling were driven on three feet centers each way except at the ends of the culvert where it was

are being laid. In general the yard will be approximately six miles long and about 2,000 ft. wide, and arranged for separate receiving, classification, and departure yards for both tonnage and fast freight. It will have an ultimate capacity of over 11,000 cars. Classification will be carried out by gravity, a full complement of winter and summer



Dorn's Cut Where Heavy and Difficult Excavation Has Been Encountered

driven only under the haunches and retaining walls. All piling was then cut to the grade of the invert and cinders filled in between them and well tamped up to within three inches of the top of piles. Reinforcement was next placed and the 3-ft. 9-in. slab poured, followed in turn by the side walls and the top slab. The sheet piling will be left

humps being provided for. Two complete 30-stall enginehouse units will be constructed to and from which engines will be handled over thoroughfare track carried under yard trackage by means of subways. Approximately 2,500,000 cu. yd. of grading are involved in the construction of this yard, which is planned to be the one of the largest and most



Carrying Out the First Level of the Coeyman's Creek Fill

permanently in place to form a retaining wall against possible disturbing soil actions. The flow of water is thus carried through the culvert entirely separate from any contact with any of the supporting soil and a maximum prevention of a possible soil saturation is secured.

The grading for the large classification yard at Feura Bush is nearing 50 per cent completion and some yard tracks modern layouts of this kind. When this yard is put in operation, solid tonnage and fast freight trains can be made up and routed eastbound direct to New England over the Boston & Albany, to Manhattan over the New York Central or to Weehawken, N. J., over the West Shore and in a similar manner, westbound freight can be brought in from the territories mentioned in solid train, classified at Feura

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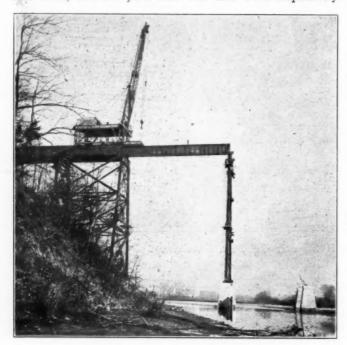
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Bush and routed west in solid trains without intermediate breakup.

The Castleton work is being carried out under the general direction of the engineering department of the New York Central, Geo. W. Kittredge, chief engineer, J. W. Pfau, engineer of construction, R. E. Dougherty, designing engineer and H. T. Welty, engineer of structures, through a field engineering organization of the Hudson River Connecting Railroad in charge of W. F. Jordan, principal assistant engineer, with B. C. Martin and B. W. Farnharm, resident engineers in active charge of the bridge and east side work, and the yard and west side work respectively.



Erecting Steel on the West Viaduct

The contractor for the grading and masonry is the Walsh Construction Company, Davenport, Ia., H. C. Kahl and David Small, vice-presidents, and Daniel Terry, superintendent, in charge of the field work. The Arthur McMullen Company, New York, is the sub-contractor for the foundations of the west viaduct and the foundations of the west and center piers of the bridge. The McClintic-Marshall Company, Pittsburgh, Pa., is the contractor for the superstructure.

More Roads Grant

Wage Increases

Several increases in wages, particularly to clerical and shop employees, have been granted by roads during the past week. Although other proposals for wage advances are now being negotiated on a number of roads, the crest of the recent wave of wage increase demands appears to have passed and the Labor Board is clearing its docket of the more important cases now pending in preparation for its summer vacation. There is little doubt that the end of summer will find the board flooded with wage increase appeals of both national and local scope. The negotiations now under way between many of the carriers and the Brotherhood of Railway Clerks indicates that this organization will petition the board before many weeks have passed. The four train service brotherhoods are now actively engaged in preparing for a strong campaign for higher wages when the present agreements expire on October 1. The shopcraft's union is

conducting a number of negotiations with individual roads on its demands.

Representatives of the New York Central and of the shopcrafts employees on the road's eastern lines, have been conferring on the labor organization's demand for increases from 70 cents to 79 cents an hour. Another subject considered at the conference is the piecework system which the New York Central has been ordered to discontinue by the Labor Board.

The Maintenance of Way and the Signalmen's unions have lately been increasing their efforts in asking wage increases on some of the southwestern roads. On the Missouri-Kansas-Texas the maintenance-of-way employees have asked increases as follows: Mechanics, four cents an hour; bridge and building helpers, laborers, crossing watchmen and bridge tenders, three cents an hour. It is understood that an offer of an average increase of two cents an hour was refused by the labor organization, and the case will undoubtedly be brought before the Labor Board for settlement.

The Railway Signalmen of America have been negotiating with the Missouri-Kansas-Texas and the Texas & Pacific on demands of wage increases of three cents an hour. It is believed that this step by the signalmen's organization is a part of a national movement which they are undertaking.

Shopcrafts employees on the Chicago, Rock Island & Pacific and the Chicago, Rock Island & Gulf received an increase of two cents an hour. Approximately 7,500 employees are affected by the settlement, which will add approximately \$344,000 to the annual payroll. The Louisville & Nashville granted the same increase to its 12,000 employees, represented by the Association of Mechanical Employees of the Louisville & Nashville.

Clerical employees on the New York, New Haven & Hartford, the Central New England and the Boston & Albany have been granted increases following negotiations between these roads and the Brotherhood of Railway and Steamship Clerks, ranging from one to three cents an hour. Some 8,000 employees on the three lines are affected. The clerk's brotherhood has also petitioned the Labor Board for increases ranging from 8 to 14 cents an hour for the employees it represents on the Chicago, St. Paul, Minneapolis & Omaha. The Order of Railroad Telegraphers has applied to the Labor Board for wage increases of from 81/2 to 22 cents an hour for telegraphers employed on the Chicago & Western Indiana. Increases of from 9 to 14 cents an hour for the clerical employees on the Kansas City Terminal, the Kansas City Southern and the Texarkana & Ft. Smith have also been filed with the board.

Chief train dispatchers rank as railway officials and therefore do not properly function under rules and working conditions prescribed by the Labor Board, according to a decision recently announced. The board further ordered that regularly assigned dispatchers shall be relieved on seven national holidays, or on seven days in lieu thereof. According to the decision, train dispatchers shall not be promoted, disciplined or discharged without proper hearing in the manner prescribed, but that suspension pending the hearing shall not be deemed a violation of this principle.

A SUIT FOR \$150,000 damages was filed in the Common Pleas Court at Columbus, Ohio, on June 16 by the McIntire Coal & Building Supply Company, Zanesville, Ohio, against the Pennsylvania and the Zanesville Terminal railroad companies for alleged failure to furnish shipping facilities at Zanesville since 1918. The plaintiff states that it had an agreement with the Zanesville Terminal Company for service over a belt line and that when the short line was sold to the Pennsylvania on April 27, 1917, service was refused, notwithstanding a ruling by the Public Utilities Commission in favor of the coal company.

President Harding Urges Consolidation

Government Ownership Would be Colossal Blunder, Position Taken in His Speech at Kansas City

ONSOLIDATION of the railroads into a smaller number of systems was advocated by President Harding in a speech on the transportation question at Kansas City, Mo., on June 22. The President also took a firm stand against government ownership of the roads, which he de-

clared would be a "colossal blunder."

Discussing relations between the roads and their employees as a vital factor in the transportation situation, Mr. Harding said that he favored continuance of the Labor Board "under such modifications as seem most likely to make the plan successful." He urged the necessity for a tribunal whose decisions would be respected by the disputants which appealed to it. The President also advocated the development and use of waterways in conjunction with the railroads. He explained the necessity for co-ordinating the rail, water and highway transportation agencies rather than permitting destructive competition among them.

Mr. Harding spoke in part as follows:

It is worth while to bear in mind, in the face of current agitation, that we could not replace our railroads for a vastly larger sum than the valuation placed upon them by the Interstate Commerce Commission, and it is fortunate for our people that we do not have to contemplate a rate structure founded upon replacement cost. Events of the last few years have made us all realize that the railroads must be administered under some policy that will make it possible to find the capital wherewith to expand the existing systems as business shall require, without imposing an impossible burden upon industry and consumption.

Government Ownership a Blunder

The railroad question is no theoretical problem. When the government undertook operation during the war and standardized wages and was caught in the sweeping current of mounting cost, it created a situation to ignore which would quickly develop a national menace. At an awful cost we learned the extravagance and mounting burden of government operation. Yet there are today very insistent advocates of government ownership. Frankly, I do not share their views. Our political system has not reached a state of development when we can insure proper administration.

I believe it would be a colossal blunder which would destroy initiative, infect us with political corruption, create regional jealousies and impose incalculable cost on the public treasury. But we must find a solution of the rate problems and the necessary expansion of facilities and find that solution in spite of the prejudices of the present-day sponsors for operations and the present-day destroyers who would bankrupt or confiscate, else government ownership and operation will become an accepted necessity. Nor do I share the views of those who would lower rates without regard to railroad good fortune. The prosperity of the railways is the prosperity of the American people, and the property rights in railway investment are entitled to every consideration under our Constitution, which is due to property rights anywhere. Any tendency toward confiscation will lead to confusion and chaos and destroy the very foundation on which the republic is builded.

Urges Consolidation

I do believe there is a rational, justifiable step, full of promise toward solution. It will effect a diminution in rates without making a net return impossible. It will make sound

finance possible for expansion. I refer to the program of consolidating all the railroads into a small number of systems, the whole to be under rigorous government supervision, and the larger systems to be so constituted that the weaker and unprofitable lines would be able to lean upon the financial strength of the stronger and profitable ones until the growth of the country makes them all earn a just return upon capital invested. The Transportation Act of 1920 contemplated this kind of a consolidation, but made it permissive rather than mandatory.

It is, therefore, being seriously proposed that the next step be to further amplify the provisions for consolidation so as to stimulate the consummation. It is my expectation that legislation to this end will be brought before Congress at the next session. Through its adoption we should take the longest step which is now feasible on the way to a solution of

our difficult problems of railroad transportation.

The necessity for early adoption of this or some other program to place the railroads on a sound basis is so pressing as to make it a matter of deep national concern. There is no other issue of greater importance, for herein lies in large part the solution of the agricultural problem, and with it the assurance of our industrial position. Nothing else can possibly prosper with agriculture depressed; and agriculture is calling loudly for relief from present transportation burdens.

Quite recently Senator Cummins made a startling statement that probably 75,000 miles of our railroads are earning so little and costing so much to operate that with scant incomes they cannot be adequately maintained and expanded in facility to meet traffic requirements. If we realize that this means near one-third of the country's railroad mileage, we will appreciate the gravity of the situation. Yet there is, grimly staring us in the face, challenging our statesman-

ship and business capacity.

Not long ago the Interstate Commerce Commission actually granted the necessary authority to tear up and abandon one piece of over 230 miles of railroad. It was no frontier line, in an undeveloped, uninhabited section; it was in the rich and populous state of Illinois. If the spectacle of a railroad literally starving to death in such a community is alarming, it is yet less a calamity in some ways than it would be in a region possessing fewer lines capable of taking over the public service. But there is no solution of the problem for many extensive communities now served by roads in financial

There are some roads-many of the smaller ones, in factwhose continued operation is absolutely vital to many thousands of people, to considerable towns, to large areas of country, whose revenues simply cannot provide financial facilities through earnings, pending a considerable growth in community population, to say nothing of earning any return whatever on capital invested. No legerdemain of court processes, receivers' certificates or financial juggling can save them. They must get more revenue or stronger support or quit operating until the country is more largely developed.

The railways have become publicly sponsored institutions, and government must find a way to avoid confiscation, avoid starvation and maintain service and a proper return upon capital which will assure them a growth commensurate with

the country's development.

We are all agreed that to abandon any important share of railroad mileage is inconceivable. We cannot do it because people already dependent on the railroads would be ruined;

and because, further, in a not very distant future, we should be compelled by the country's development to put them back, or their equivalent in capacity for service. They must be saved. There are just three possible ways to do it!

Three Courses Open

1. For the government to take and operate the weak roads, and thus bear all the loss without any of the profits of rail-road management.

2. For the government to take all the railroads, convert them into one gigantic pool, and plunge into the enormous responsibility thus incurred. In the present state of the public treasury and of tax burdens, and in the light of recent sad experience with government management, this is not to be considered. I believe it would be politically, socially and economically disastrous.

3. The plan of consolidations already outlined, bringing economies in operation, financial stability, ability to secure needed capital, adjusting rates and regulations to the necessities of the position, and preserving the real advantages of competition in service, while avoiding the evils of government ownership.

As among these possibilities there can be little doubt of the public preference for the third program. It is not unjust to the strong roads, for the prosperity of these, like the prosperity of all industry, depends on keeping the country as a whole prosperous. Every mile of railroad trackage in the land helps to make business for every other mile. The transportation system must be considered as a unity, precisely as the nation itself must be considered. In this manner we will best help to insure the credit of the railroads, assist them to new capital for future expansion, and insure, for the future, against the sort of wildcat and competitive railroad construction which in the past has been responsible for giving us a great share of the trackage which now proves economically unjustified.

There is another particular reason which urges the early adoption of the larger-system plan. It would be a long step toward solving the problem of keeping the railroad equipment adequate, since many financially weak roads are unable to provide all the rolling stock they need.

To meet this condition, the proposal of a nation-wide car pool has lately attracted much attention. The Pullman company fairly illustrates what is meant. This great corporation provides most of the railroads with certain kinds of cars, on a rental basis. Applying the same idea to the provisions of freight cars, you have a rough notion of the proposed car pool. In any event the system of consolidation would in effect clear up many difficulties in car distribution.

The Labor Board

There is no other business, so far as I know, in which suspension of operations can produce such disastrous results as in transportation. The vital importance of this service has brought many people to the conclusion that it ought to be possible absolutely to forbid and prevent railroad employees from striking. I do not believe it possible under our form of government to compel men to work against their will, and do not think it desirable under any form of government. I say this, fully recalling my vote in the senate in favor of the anti-strike provision of the railroad act in 1920. That was not a provision denying men the right to strike. It was merely a requirement that before the men should strike or the employer should lock them out, both sides should submit their differences to a properly constituted and impartial tribunal empowered to consider the facts, determine the merits, and make an award.

It was believed that in the vast majority of cases this procedure would prevent lockouts and strikes; and, in view of the enormous loss to the carriers, to their employees, and to the public resulting from strikes, I profoundly regret that

it should not have been possible to give the plan a fair trial. When I say a fair trial, I mean a trial under conditions fully and frankly acceptable to all interests. I do not believe that in such a situation a fair trial is possible unless both sides have absolute confidence in the fairness of the tribunal and are sincerely willing to accept its verdict. If human wisdom shall ever be capable of setting up such a tribunal as that and of inspiring both sides of the controversy with complete confidence in it, we will have traveled a long way toward industrial peace.

Need of Waterways and Highways

I believe the use of our inland waterways offers the one sure way to reduce carrying charges on basic materials, heavy cargoes and farm products. We ought to try the experiment of co-ordinating rail and water shipments, we ought to avail ourselves of the waterways developed through expenditures of enormous public funds, and we ought to give the waterway carriers a chance to prove their capacity for helpful service.

I wish the railway leadership of the country could see the need of this employment of our water routes as an essential factor in perfected transportation, and join in aiding the feasible plan of co-ordinating service and cheapening charges, not alone as a means of popularized and efficient public service, but as a means of ending the peril of their own fortunes.

No thoughtful sentiment in America will tolerate the financial ruin of the railroads. But the people do wish, now that exploitation has been ended, to have their transportation adequate to the country's needs, and desire all our facilities brought into efficient service. They wish to make sure of ample agencies, and they demand the least carrying charge which will make an adequate return to capital and at the same time permit extensions and additions and enhanced equipment essential to the best transportation.

The automobile and motor truck have made greater inroads on railway revenues than the electric lines with their intimate appeal to the local community. There will never be a backward step in motor transportation. But we shall do better if we find a plan to co-ordinate this service with the railways, rather than encourage destructive competition. The motor transport already promises relief to our congested terminals through better co-ordination. We have come to the point where we need all the statecraft in business, to find the way to make transportation in its varied forms adequate to the requirements of American commerce, to afford that transportation its due reward for service without taking from production and trade a hindering exaction.

I cannot too greatly stress the importance of this great problem. It cannot be solved by those who commend the policy of confiscation or destruction, nor can it be solved by those who make a prejudiced appeal for political favor. We must frankly recognize the exactions imposed upon the American farmer during the war in expansion of rates, take note of the wage development which will yield no reduction in the principal item of operating cost, and seek conditions under which we may have the requisite reductions in fixed charges which will afford encouraging relief. If the system of consolidations, with diminished overhead costs, with terminal advantages largely improved and terminal charges greatly reduced, will not afford the solution, then our failure will enforce a costlier experiment and the one great commitment which I hope the United States will forever escape.

W. G. Lee of the Brotherhood of Railroad Trainmen and L. E. Sheppard of the Order of Railway Conductors announce that conferences will be held in Chicago, beginning July 9, to consider the formulation of a general application to secure increased wages.

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St. Louis Roads Coordinate Rail and Motor Service

Private Transfer Company Handles East Side and Interchange L.C.L. Traffic Under Contract

THE HANDLING of less than car load freight to and from freight houses of the roads terminating at St. Louis, Mo., and East St. Louis, Ill., and in interchange between these roads, has been developed in a way that is both unique and efficient. It consists of a cartage system, supplemented by off-track union freight stations at which freight is handled for all roads. This service is rendered by the Columbia Terminals Company, a private corporation which operates under contracts with the roads and in accordance with published tariffs.

The situation at St. Louis differs to some extent from that

In a report completed last year, an engineers' committee organized to make a comprehensive report of the East St. Louis railway terminals stated that "the provision of ontrack individual freight stations in St. Louis immediately adjacent to the central business district by all east side lines would require at least nine roads to secure locations and construct considerable track driveways and freight houses. The location of such houses where they would even approach the convenience of the off-track universal freight stations would entail an expenditure for property and construction that would result in such an enormous addition to the over-



Trailers Loaded at an East Side Freight Station

at other railway centers by reason of the development on the east bank of the Mississippi river at East St. Louis, Ill., of the terminals of a number of the railroads serving St. Louis from the east. This development is the natural outgrowth of physical conditions. The Mississippi river served as a barrier to the lines from the north, south and east, reaching the East St. Louis side of the river prior to the construction of the Eads bridge in 1876. By the time the bridge was constructed much of the ground in St. Louis convenient to the shipping district available for railroad facilities had been acquired by the railroads entering St. Louis from the west so that when the railroads from the other directions were enabled to cross the river they found it difficult and expensive to acquire adequate space for freight house and trackage facilities conveniently situated to the shipping district of St. Louis. Besides, the rates of the lines from the east were made to apply to East St. Louis rather than to St. Louis. As a result, the Baltimore & Ohio; the Chicago & Alton; the Chicago, Peoria & St. Louis; the Big Four; the Illinois Central; the Mobile & Ohio; the Pennsylvania; the Southern, and the Clover Leaf operate no freight houses in St. Louis.

head of the railroads as to remove that method from further consideration."

Prior to the construction of the Eads bridge, the shippers had to pay a ferry charge in order to gain access to the freight stations of the roads serving St. Louis from the east side of the river. This charge and the difficulty of the individual shipper in getting to East St. Louis influenced shippers and consignees in St. Louis to employ as their draymen the St. Louis Transfer Company for the movement of their business between the two points, and this company had a practical monopoly on the business for a good many years.

The transfer company, by reason of the necessity for relaying some of the freight in order to expedite the movement of its teams, acquired a depot.

This was followed by the establishment by them of other depots. Gradually their depots came to be used by some shippers who found it either more economical or more convenient to deliver to and call at the depots of the transfer companies for freight than to have it delivered or called for at store door. This practice grew and with it the private drayman came to be employed more and more. The private

drayman, however, confined his operations to the west side of the river.

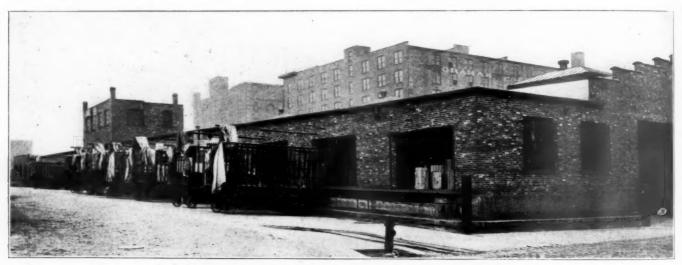
In 1902 the Columbia Transfer Company was organized and two years later opened its first depot for the receipt and delivery of freight. The Columbia Company developed along the lines followed by the St. Louis Company, operating depots for the receipt and delivery of freight and the handling of what is commonly termed connecting line business. In 1910, after months of negotiations between a commission appointed by the mayor of St. Louis and representatives of the railroads, the rates of eastern lines were applied to St. Louis. This resulted in the railroads making the St. Louis and the Columbia companies their agencies in St. Louis and accordingly, the rates of the railroads to and from St. Louis were applied to and from the depots of those companies. In April, 1918, the Columbia Transfer Company purchased all of the stock of the St. Louis Transfer Company and the facilities and the equipment of the two companies were merged.

In addition to the service rendered by the Columbia Terminal's Company, the Terminal Railroad Association of St. Louis, which is owned by 15 of the roads entering St. Louis, and which serves all roads, maintains a station at

Company to the consignees and the freight is hauled from its stations by their draymen.

In the performance of this service, the Terminal's Company assumes full responsibility as a common carrier. It participates in the settlement of claims while the charges for its services are fixed in published tariffs which apply uniformly to all off-track stations. Its revenue averages \$2.14 to \$2.25 per ton for outbound traffic and \$2.34 to \$2.75 per ton for inbound traffic. The average rate received on interchange freight is \$1.90 per ton. For these rates, the Terminal Company provides the facilities at the off-track stations, and assumes all expense of handling the freight at these points and to or from the houses of the individual roads. It makes out all waybills, issues receiving notices, etc. It also pays all freight charges to the roads and collects from consignees and shippers.

While this freight was handled originally by horse-drawn wagons, for which a maximum of 300 teams were in service at one time, the Columbia Company began to experiment with motor trucks in 1914. In adapting them to this service, it was found possible to transfer a considerable proportion of the traffic directly from the shippers' trucks to those of the terminal company, thus saving labor, expense and plat-



Off Track Freight Station at Eleventh and Spruce Streets

which freight is received for all roads, although only a small tonnage is handled here. Another station known as the Cupples station has a union freight house which loads full trap cars for each road, but its service is restricted to tenants in that building. A limited tonnage is also loaded directly into trap cars by shippers. The result is that the Columbia Company handles approximately 50 per cent of the l.c.l. freight originating or terminating in St. Louis and handled through the East St. Louis houses. It also handles a considerable tonnage of St. Louis business through the houses on the west side of the river and practically all of the l.c.l. freight interchanged between these roads, the large part of which crosses the river.

Five off-track outbound stations are maintained by the Columbia Company in different localities in the business section of St. Louis at which freight is received from shippers, for all railroads terminating at East St. Louis and St. Louis. In no case does the company call at the shipper's door for freight. Three inbound stations are also maintained for the accommodation of freight brought to East St. Louis by the railroads for St. Louis consignees. In cases where the consignee directs the company to make delivery to his place of business, it does so, but directions of this character are received in a comparatively small percentage of cases. Unless directed to make the delivery, notice is sent by the Terminal

form space. Because of the necessity of holding the motor trucks during this transfer, they did not prove economical and attention was then directed to the development of a system of trailers which could be loaded "dead" and moved by tractors. In 1919, a tractor and three Lapeer trailers were purchased and they proved so satisfactory that others have been added until today 63 tractors and 197 10-ton trailers are in service and more will be added regularly until the remaining 300 horses now employed are relieved. It is anticipated that 125 tractors and 400 trailers will enable all of the horses to be eliminated. The tractors are of Packard, Mack and Pierce Arrow construction, while the trailers are all of the type originally purchased.

This tractor-trailer system permits one tractor, which involves the heaviest investment, to handle three or four trailers as fast as they can be loaded and unloaded, thereby reducing its non-productive time to the minimum and securing the maximum return from the investment. The tractors make an average of 25 miles per day. From the standpoint of the railways, a surplus of trailers at the freight houses enables a considerable amount of freight to be trucked direct from cars to the trailers, while as the trailers stand in the streets or driveways they do not interfere in any way with operations within the house.

This system of cartage is adapted to the conditions existing

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on of at the 21 freight houses in St. Louis and East St. Louis, which were built for delivery of freight by teams. The trailers require no additional expense for equipment on the part of the roads, neither do they encroach on the floor area in the houses. As the trucks deliver full loads to each house, the team congestion is reduced greatly.

In the operation of this system only freight for one freight house is loaded on a trailer, although no attempt is made to concentrate it beyond that point. The average load on a trailer is six tons. As a trailer is loaded a central truck dispatcher is notified who sends a tractor for it. The driver of the tractor is given a manifest of the load, enabling over or under loading to be detected quickly. The terminal company has a representative in each freight station, while a



Tractor and Trailer Under Load Leaving Station at Second and Carr Streets

general superintendent is in charge of operations on each side of the river.

At the present time this company is handling in excess of six million pounds of freight per day, comprising about 15,000 individual shipments. As indicative of the distribution of this traffic, the following statistics refer to operations during March, 1923.

Tonnage outbound delivered to all roads on both sides of river	72,990,211
Total tonnage received at west side stations	20,540,208
Tonnage received at west side stations for St. Louis	7,473,694
Tonnage received at west side stations for the west side roads	6,001,502
Tonnage received at west side stations for the east side roads	7,065,012
Total tennage received from east side roads	69,866,832
Tonnage received from east side roads for St. Louis	26,484,053
Tonnage received from east side roads for the eastern roads	6,191,827
Tonnage received from east side roads for the west side roads	37,190,952

Of the outbound traffic originating at St. Louis practically all is loaded out of the railway stations on the same day that it is delivered to the Terminal Company, while about 87 per cent of that handled in interchange is delivered to the connecting line on the same day it is unloaded at the station of the incoming road. This compares with an average interval of five days for interchange movement by rail. The value of this prompt movement in taking freight from the roads is indicated by the fact that there has been no congestion at any freight house in St. Louis or East St. Louis during the recent periods of heavy traffic, a condition which stands out in marked contrast with those prevailing in most other large cities. This has been made possible by the Columbia Terminal's Company driving the consignees harder than the roads are able to remove their freight as a result of which it gets quicker action than an individual road competing with others. This is indicated by the fact that this company handles an average of 2.68 tons of freight

in and out per square foot of floor space per year, as compared with an average of 1.73 tons in the railroad houses. Furthermore, when a road is handling a large amount of freight inbound, as many as 50 to 60 trailers are loaded frequently after the regular closing time in order to release cars.

As stated above, the Terminal's Company participates with the roads in the settlement of all claims. To eliminate overs and shorts, drivers are held at the stations whenever discrepancies are discovered until the consignor is communicated with, thereby clearing up most errors promptly. By this and other similar measures, claims of all kinds embracing shortages, damages, concealed losses, etc., are kept down to an average of less than \$1,400 per month or below 1 per cent of the revenues.

In making this plan effective attention has been given to the enlisting of the co-operation of the employees, special attention has been given to their education and the importance of handling freight carefully and a bonus is offered all employees to stimulate the output of their work.

Authority for Virginian Extension to New Mines Denied

DECLARING that there are now sufficient coal mines in the United States the Interstate Commerce Commission on June 26 refused authority to the Virginian to construct an extension in Wyoming county, West Virginia, for the purpose of serving new mines to be opened by the Pocahontas Fuel Company. Work already had begun on the proposed branch, which is located in the Guyandot river valley. Its projected length was stated in the carrier's application for a certificate of public convenience and necessity to be only 1½ miles in length and the cost of construction was estimated at \$62,000.

The Interstate Commerce Commission's action is a novel departure from its previous decisions in such cases and is believed to have been influenced to some extent by the finding of the Coal Commission in its preliminary report on the bituminous coal industry, that only 60 per cent of the bituminous coal mines now in existence would be sufficient to supply the country's needs. The Interstate Commerce Commission stated in its report on the Virginian's application that a smaller number of mines actually could produce more coal, because the railroads' coal car supply could be handled to better advantage.

"There are at present more mines in the country than is consistent with the efficient use of carriers' equipment and their aggregate car supply," the commission's report stated. Referring to the matter immediately under consideration, it was stated that the Virginian, during 28 weeks in the past year, could not furnish more than 50 per cent of the cars ordered by the mines on its lines.

It is anticipated that the commission's decision on the Virginian's application will provoke litigation. It is conceded that if the commission is sustained on the question of its jurisdiction and authority that it will be one effective means to prevent further expansion of what the coal commission has described as an already over-developed industry. Although the commission has given the most careful consideration in the past to railroads' applications proposing new construction, and has availed itself frequently of the power to disapprove such plans, such proceedings have been more or less stereotyped, the commission seeking assurances only that the investment required is warranted by the carrier's financial resources and that the potential traffic in the territory to be served appears sufficient to yield an adequate return on such investment.

Freight Car Loading

VASHINGTON, D. C.

Revenue freight car loading for the week ended June 16 continued above the million car mark although there was a slight recession from the figure of the preceding week. The loading amounted to 1,007,253 cars compared with 1,013,249 in the preceding week, according to figures compiled by the Car Service Division of the American Railway Association. Compared with loading for the corresponding week in all preceding years of which there is any record the loading was exceptional.

Loading for the week ended June 16 and in the cor-

responding week of 1922 was as follows:

Eastern district: Grain and grain products, 7,591 and 9,193; live stock, 2,833 and 2,671; coal, 54,663 and 8,079; coke, 4,018 and 1,629; forest products, 7,231 and 5,952; ore, 8,703 and 3,613; merchandise l.c.l., 67,566 and 70,561; and miscellaneous, 99,707 and 88,752.

Allegheny district: Grain and grain products, 2,025 and 2,140; live stock, 2,442 and 2,510; coal, 59,867 and 16.817; coke, 7,665 and 4,681; forest products, 3,444 and 3,161; ore, 16,132 and 9,140; merchandise l.c.l., 48,382 and 51,615; and miscellaneous, 85,249 and 76,204.

Pocahontas district: Grain and grain products, 223 and

Central Western district: Grain and grain products, 8,134 and 10,570; live stock, 10,274 and 11,090; coal, 12,737 and 4,567; coke, 418 and 250; forest products, 12,751 and 7,213; ore, 3,259 and 2,349; merchandise l.c.l., 35,006 and 35,699; miscellaneous, 50,383 and 47,156.

Southwestern district: Grain and grain products, 3,138 and 4,069; live stock, 2,510 and 2,496; coal, 3,943 and 2,557; coke, 139 and 169; forest products, 7,678 and 7,544; ore, 387 and 383; merchandise l.c.l., 14,476 and 14,422; and miscellaneous, 21,717 and 23,530.

Total all roads: Grain and grain products, 33,903 and 39,360; live stock, 28,461 and 29,184; coal, 187,009 and 91,117; coke, 15,167 and 9,193; forest products, 78,058 and 62,386; ore, 79,298 and 53,211; merchandise l.c.l., 241,947 and 245,329; and miscellaneous, 343,410 and 318,-817. Total, 1923—1,007,253; 1922—848,657; and 1921—775,328.

Surplus freight cars in good repair and immediately available for service totaled 51,988 on June 14, an increase of 10,882 over number of such cars on June 7. At the same time the total reported car shortage for the country as a whole amounted to 12,787 cars, or a decrease of 191 within the same period. This increase in surplus and decrease in car shortage took place in the face of the fact that load-

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

SUMMARY-ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY, JUNE 16, 1923

		Grain	Grain							Total revenue freight loaded		
		and	Y inc		F			W4	Mina-1		Corresponding period	
Districts	Year	grain	Live stock	Coal	Coke	Forest	Ore	Mdse. L.C.L.	Miscel- laneous	1923	1922	1921
	1923	7,591	2,833	54,663	4,018	7,231	8,703	67,566	99,707	252,312		
	1923	9,193	2,671	8,079	1,629	5,952	3,613	70,561	86,752		100 450	100 560
A11	1923	2,025	2,442	59,867	7,665	3,444	16,132	48,382	85,249	225,206	190,450	188,568
	1923	2,140	2,510	16,817	4,681	3,162	9,140	51,615	76,204		166 260	160 102
D b to -	1922	2,140	128	27,763	470	2,004	194	6,391	4,755	41,928	166,269	160,193
a continue in the continue in	1923	185	114	29,793	245	1,546	21	6,454	4,753		40 561	25 005
Conthoso	1923	3,272	2,164	20,487	1,295	22,934	1,777	38,451	41,935	122 215	42,561	35,005
Southern	1923	3,267	2,186	22,538	717	19,373	1,099	37,199	40,779	132,315	107 150	100 744
N-atherest and		9,520	8,110	7,549	1,162	22,016	48.846	31,675	39,664	168,542	127,158	109,744
Northwestern 19	1923	9,936	8,117	6,826	1,502	17,596	36,606	29,379			140 155	115 (01
C W		8,134	10,274	12,737	418				38,193	122.062	148,155	115,691
Central Western	1923 1922	10,570	11,090	4,567	250	12,751 7,213	3,259	35,006	50,383	132,962	440.004	100 501
C	1923	3,138	3.00	3,943	135	7,678	2,349 387	35,699	47,156	£1,000	118,894	108,521
Southwestern	1923	4,069	2,510 2,496	2,557	169	7,544	383	14,476 14,422	21,717	53,988	FF 170	87 606
Total western districts		20,792	20,894	24,229	1,719						55,170	57,606
Total western districts	1923					42,445	52,492	51,157	111,704	355,492	200.010	001 010
W-4-1 -111-	1923	24,575	21,703	13,950	1,921	. 32,353	39,338	79,500	108,879	1 007 353	322,219	281,818
19		33,903	28,461	187,009	15,167	78,058	79,298	241,947	343,410	1,007,253	040.555	*****
	1922	39,360	29,184	91,177	9,193	62,386	53,211	245,329	318,817		848,657	· · ·
	1921	40,258	28,238	155,308	4,612	50,563	28,863	216,593	250,893			775,328
Increase compared				95,832	5,974	15,672	26,087		24,593	158,596		
Decrease compared		5,457	723					3,382			* * * * * *	
Increase compared			223	31,701	10,555	27,495	50,435	25,354	92,517	231,925		*****
Decrease compared		6,355	00'454	******				*****		*****	*****	*****
June 16	1923	33,503	28,461	187,009	15,167	78,058	79,298	241,947	343,410	1,007,253	848,657	775,328
June 9		34,390	32,723	190,149	14,804	76,380	76,092	242,766	345,945	1,013,249	836,208	787,283
June 2		32,340	29,399	171,248	14,389	73,637	73,390	216,386	321,252	932,041	739,550	693,903
May 26		35,522	31,777	192,092	15,000	79,339	70,119	243,834	346,346	1,014,029	806,877	795,33
May 19	1923	33,806	31,274	181,599	15,470	77,653	67,057	244,325	340,613	991,797	780,953	770.99

185; live stock, 128 and 114; coal, 27,763 and 29,793; coke, 470 and 245; forest products, 2,004 and 1,546; ore, 194 and 21; merchandise l.c.l., 6,391 and 6,454; and miscellaneous, 4,755 and 4,203.

Southern district: Grain and grain products, 3,272 and 3,267; live stock, 2,164 and 2,186; coal, 20,487 and 22,538; coke, 1,295 and 717; forest products, 22,934 and 19,373; ore, 1,777 and 1,099; merchandise l.c.l., 38,451 and 37,199; and miscellaneous, 41,935 and 40,779.

Northwestern district: Grain and grain products, 9,520 and 9,936; live stock, 8,110 and 8,117; coal, 7,549 and 6,826; coke, 1,162 and 1,502; forest products, 22,016 and 17,596; ore, 48,846 and 36,606; merchandise l.c.l., 31,675 and 29,379; and miscellaneous, 39,664 and 38,193.

ing of revenue freight for the third time within a month and the second consecutive week exceeded the million car mark.

Of the total number of surplus freight cars 29,860 were box cars, an increase of 9,549 within a week. Surplus coal cars numbered 3,129, a decrease of 399 since June 7. Surplus refrigerator cars numbered 11,636, an increase within a week of 965, while there was an increase within the same period of 760 in the number of surplus stock cars which brought the total for that class of equipment to a figure of 6,223.

The reported shortage in box cars numbered 1,697, a decrease since June 7 of 64. Shortage in coal cars on June 14 amounted to 9,257, an increase since June 7 of 331.



An Eric Train Crossing a Bridge Over the Genesee River Near Rochester, N. Y.

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Erie Replaces Steel Contact Wire With Bronze

It Was a Pioneer in Use of 11,000 Volt A. C. Power—Much Valuable Experience Has Been Gained

EW CONTACT WIRE is being strung on the electrified section of the Erie Railroad which extends from Rochester, N. Y., to Mt. Morris, N. Y., a distance of 34 miles. The new wire will be strung from Rochester to Avon, N. Y., a distance of 19 miles. This division of the Erie was electrified at the same time as the New York, New Haven & Hartford between New York City and New Haven, Conn. Both roads use 11,000-volt alternating current and both roads are in a position to furnish valuable information pertaining to the design and construction of high voltage catenary systems.

Type of Equipment Used

The power distribution system consists essentially of a single catenary supported on wood and on steel poles except in yards where cross catenaries stretched between steel poles are used to support the main catenary (Figs. 1 and 2). The main catenary is made up of three wires or cables, namely, a supporting messenger consisting of a 7/16-in. seven-strand, galvanized Siemens-Martin high-strength steel cable, a 3/0 solid copper auxiliary messenger and a 3/0 solid steel contact wire. The maximum height of the contact wire above the rail is 22 ft. and the minimum is 18 ft.

The auxiliary messenger is supported from the main or supporting messenger by space bars placed 10 ft. apart and the contact wire is supported from the auxiliary messenger by clips also placed 10 ft. apart and located half-way between the space bars.

The poles are placed 120 ft. apart and fitted with brackets as shown in Fig. 1. A pin type insulator on the end of the bracket supports the messenger and a second pin type insulator, top mounted, holds a steady brace (Figs. 1 and 3) which keeps the contact wire from swinging. The return current is carried through the running rails.

There is one sub-station on the line located at Avon, N. Y., about half-way between the terminals at Rochester and Mt. Morris. Power is purchased from the Niagara,

Lockport & Ontario Power Company and is converted in the sub station from 60,000 volts to 11,000 volts for use on the trolley.

The frequency is 25 cycles. The three main power transformers in the sub-stations have a rating of 750 kilovolt-amperes each and are oil-insulated and water-cooled.

There are eight motor cars and eleven trailers which, like the motor cars, are equipped with electric heaters. The motor cars weigh 98,000 lb. and are equipped with 4 Westinghouse type 132-A railway motors.

Traffic

The train schedule includes 12 regular electric trains a day in each direction between Rochester and Mt. Morris. These trains vary from one consisting of a single motor car to one made up of two motor cars and eight trailers. The maximum current required at starting is 70 amperes per car or 140 amperes for a train including two motor cars. The normal running load is about 16 amperes per motor car. All of the freight traffic is handled with steam locomotives. One of the motor cars is shown in Fig 4.

Both freight and passenger service are heavier between Rochester and Avon than between Avon and Mt. Morris. For this reason it is not yet necessary that the contact wire between Avon and Mt. Morris be renewed.

Experience in Catenary Design

As installed originally the catenary consisted of a 3/0 solid copper contact wire with a grooved cross-section supported by space bars (as shown in Fig. 5) from a 7-strand galvanized steel messenger. This catenary was installed in 1906 and retained in service until 1913. A change was then made because of a fundamental weakness of the original design. It was found that the contact wire would move or creep longitudinally with relation to the messenger. This caused the space bars to assume a slightly inclined position with a consequent kink in the contact wire. As a result the

contact wire broke frequently at points where it had been are placed midway between space bars and are spaced 10 ft. kinked.

To correct this difficulty a 3/0 solid, grooved steel contact wire was strung, supported from the old contact wire by clamp as shown in Fig. 6. As stated previously the clamps

Fig. 1-Typical Wood Pole Catenary Construction for Tangent Track

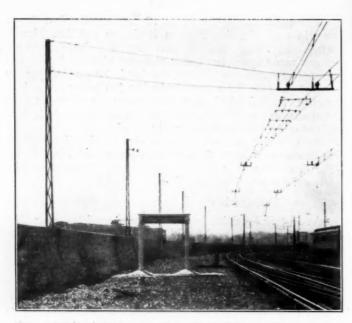


Fig. 2-Cross Catenaries Are Used Where There Are a Number of Tracks

The clamps are made of two pieces of galvanized malleable iron held together by two ½-in, galvanized bolts. The bolts are fitted with lock washers. The clamps are so designed that they grip the steel contact wire tightly, but will slide on the old contact wire which is now really an auxiliary

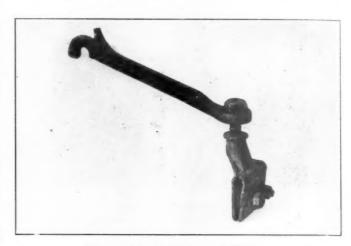


Fig. 3-Steady Brace and Clamp

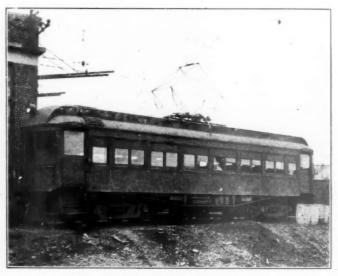


Fig. 4-One of the Motor Cars



Fig. 5-The Original Catenary Consisted of a Contact Wire Supported by Space Bars From a Single Messenger

messenger. A clear conception of the design of the clamps may be had by looking at the end view of the steady clamp,

Fig. 3.

With regard to service and dependability the three-wire catenary has been highly satisfactory. The steel wire was strung in 1913 and during its 10 years in service it has broken only three times. The original wire was .438 in. in diameter and a typical sample of the wire measured recently had a diameter of .331 in. Samples of the contact wires are



Fig. 6—The Addition of a New Contact Wire Greatly Improved the Catenary

shown in Fig. 7. The sample at the left showing a section is a piece of the steel wire while the one at the right is a piece of the original copper contact wire. The amount of wear on the steel wire may be seen to be large while that of the copper is comparatively small. The two samples below are steel and show the rusted condition of the wire. The supporting messenger will be serviceable for a number of years and there is practically no depreciation of the copper auxiliary messenger.

Phono-Electric wire is now being used to replace the steel wire. It was chosen primarily because of its high strength

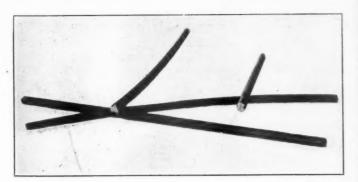


Fig. 7—Sample of the Steel Contact Wire and of the Copper Auxiliary Messenger Previously Used as a Contact Wire

and wearing quality and because it will not rust. Its conductivity at 25 cycles is 60 per cent that of pure copper of equal cross-section. The Phono-Electric is 3/0 wire and has a grooved cross-section.

The principal objection to the steel contact wire is the rust which falls from the wire, making the cars look badly in a relatively short time. It was also found that the steel wire increased the wear of the pantagraph shoes. A shoe that would run 12,000 miles on the copper contact wire ran only 5,000 miles on the steel. This, however, is not a factor of great importance as a pantagraph shoe cost only \$2.30. The

pantagraphs exert a vertical pressure of 8 lb. against the contact wire.

The work of stringing the wire is done at night between 1:00 A. M. and 6:00 A. M. which is the only time the traffic will permit taking the current off the line.

The construction train consists of an open top car, a box

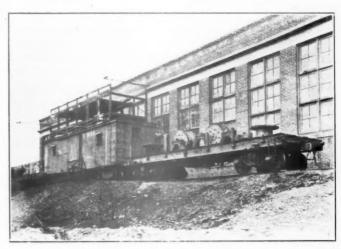


Fig. 8-Construction and Repair Train

car, a flat car and a locomotive. The open top car is used for loading the steel wire that is taken down. There is a working platform mounted on the box car and the car is used to carry tools and a complete supply of space bars, clamps, insulators and other extra parts. The flat car is



Fig. 9-Stringing the New Phono-Electric Contact Wire

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used to carry the reels of Phono-Electric wire and the mountings for the reels. The locomotive is coupled to the flat car and when the work is in progress, the locomotive is used to pull rather than push the train. The front end of the locomotive is coupled to the flat car and light for the work is supplied by three acetylene flood lights and the locomotive headlight. There are seven men to do the work besides the train crew.

The first operation consists of taking the old contact wire down. The men on the platform take the clamps which hold the contact wire off with socket wrenches as the train is moved along. It is then cut up into lengths varying from eight to twelve feet with large bolt cutters and dropped into the open

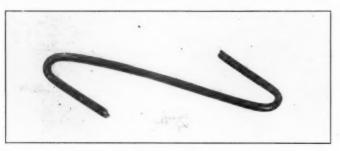


Fig. 10-A Sister Hook Made From Old Steel Contact Wire

top car. About a mile of the wire is taken down at one time and the remaining contact wire is kept from running slack by clamping the end to the supporting catenary.

The second operation consists of stringing new contact wire. This work is shown in progress in Fig. 9. A jin pole with a pully sheave at the top is erected and held with guys as shown. The new wire from the reel is run up over the sheave and is connected to such wire as has been strung previously with a Cleveland connector. The train then moves ahead steadily at a speed of from one to two miles an hour. Two men with a heavy plank, brake the reel so that the wire

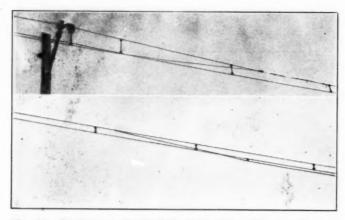


Fig. 11—Sections of the Overhead Showing How the Contact Wires are Secured Temporarily to the Messenger So That the Trains Can Be Operated from the Auxiliary Messenger Without Interruption

is taut as it is payed out. As the train moves along the men on the platform suspend the new wire from the supporting messenger with sister hooks (Fig. 10) made from short pieces of the old contact wire. These hooks are made up previously in varying lengths and are short enough so that as the new wire is payed out it hangs in a position above the auxiliary messenger or old contact wire.

There is about a mile of wire on each reel and after it is all payed out the end of the new wire is clamped to the supporting messenger. The wire is then pulled to the proper

tension, first with block and tackle and finally with a turnbuckle. About half a mile of wire is pulled at a time and after the second pull the end of the new contact wire is again clamped to the supporting messenger.

The Final Step

The next and final step consists of removing the sister hooks and putting on the clamps which support the contact wire from the auxiliary messenger.

The fact that the auxiliary messenger was a contact wire before it was a messenger has proved an advantage in replacing the contact wire. After a length of the old wire has been taken down it often happens that there is not time enough left to replace it before the early morning trains must start. A section of the auxiliary messenger is then used temporarily as a contact wire and no special expedients need be resorted to, to maintain regular service. The beginning and the end of a one-mile section in which the auxiliary messenger functions as a contact wire are shown in the upper and lower halves of Fig. 11.

The work is being carried on under the supervision of R. C. Thurston, electrical engineer, and is now nearly completed.

Union Pacific Holds Safety Rally at Green River, Wyo.

A GREEN RIVER DAY celebration was held at Green River, Wyo., on June 18 under the auspices of the Western Division Safety Committee of the Union Pacific and the Citizens' Committee of Green River. This celebration was patterned after that held at North Platte, Neb., on May 31. Special trains brought citizens and employees from Evanston, Rawlins and Superior, Wyo., each accompanied by a Union Pacific shop band. Delegations from other points arrived on regular trains and in automobiles.

The Safety Committee convened in a session open to the public at 8 a. m. After the completion of the regular order of business, addresses were made by a number of officers and employees of the road. At 11 a. m. a parade was formed led by the 76th Field Artillery band, escorted by Troop G of the 13th Cavalry, United States Army. In this parade were a number of general officers, safety committeemen and employees of the Union Pacific, carrying flags and banners won as trophies in 1920, 1921 and 1922. In the parade were also a number of illustrations of safe and unsafe methods, including an automobile truck carrying a full size electric semaphore signal alternately at the stop and cautious positions and carrying the words "Observe crossing signal indications." Immediately behind this truck was a new automobile carrying the words "I did" and back of it an automobile truck carrying a wrecked automobile with the words "I didn't."

A feature of the parade was an exhibit of several stages of transportation, including in turn a trapper, a prospector, a pony express rider, a stage coach with armed guard and a replica of the modern steam locomotive. Another feature of the day's program which attracted much interest was a demonstration by the First Aid life saving crew from the Union Pacific mines showing the manner of rescue and resuscitation of miners. Other features included a chicken hunt, a wolf hunt and a bear hunt. The day was concluded with a barbecue of 5,000 lb. of beef. In the evening Edson Rich, assistant general solicitor of the Union Pacific, and Charles J. Lane addressed the employees, farmers and business men on the railroad problem.

Roads Present Data Defending Pullman Surcharge

Several Witnesses Offer Testimony Justifying Extra Charge for Special Accommodations

THE INTERSTATE COMMERCE COMMISSION held a hearing at Chicago on June 20 and 21 in the matter of charges for passengers traveling in parlor and sleeping cars, with which was combined a complaint of the United Commercial Travelers of America on Pullman rates. The Pullman surcharge, which has been in effect since May 1, 1920, is opposed by the International Federation of Commercial Travelers' Association, the United Commercial Travelers' Association and the Pullman company on the contention that it has brought about a reduction of sales forces and a general slowing up of production on the part of mercantile houses employing large corps of salesmen and because the emergency that brought it into effect has passed. It is contended that the surcharge is a means of obtaining additional compensation above the rates fixed by the Interstate Commerce Commission as being just and reasonable for the service rendered the public. The hearing was conducted by Commissioner J. B. Campbell and Examiner J. B. Keeler. The railroads were represented by J. L. Coleman, general attorney for the Atchison, Topeka & Santa Fe; H. W. Bikle, general attorney for the Pennsylvania, and Clyde Brown, general solicitor for the New York Central. G. S. Fernald represented the Pullman Company, A. M. Loeb represented the United Commercial Travelers and C. W. Armstrong represented the Travelers' National Press Bureau.

The entire time occupied by the two days' hearing was given over to the testimony of witnesses representing the railroads. The first witness called was J. E. Burwell, superintendent of passenger transportation of the Pennsylvania, who testified that, if necessary, railroads could do without Pullman service, but they would have to operate their own sleeping cars, which would necessitate a great expense. His testimony consisted of 13 reasons for the payment of the

surcharge which are as follows:

(1) The capacity of Pullmans is less than that of coaches in that a Pullman of 12 sections and one drawing room will accommodate 27 passengers, one to a berth, while a steel coach will accommodate 70 to 80 passengers.

(2) Pullmans standing in terminals before the departure of trains and after the arrival occupy valuable track space.

(3) Sanitary accommodations are provided by the railroad in cases where cars are placed for advance occupancy in the evening and where they are held for occupancy during the morning hours which adds to the expense of operation.

(4) Train conductors or other employees are required to be on hand in some cases two or three hours prior to the departure of trains for the purpose of checking transportation in order that passengers need not be disturbed after retiring

(5) Trains are heavier with Pullman equipment furnished than with coaches and require in many instances additional sections for a similar number of passengers who other-

wise could be carried in one section.

(6) The demands of the service require various accommodations so that cars of many different interior layouts are provided which necessitates considerable space in terminals for their accommodation and preparation.

(7) In order to provide cars of proper interior arrangement deadheading of equipment is also necessary as traffic is not uniform and cars are not always where the demand is

(8) In order to provide proper cars, the switching service in yards is often augmented so that cars of desired interior

may be made up in trains and club cars and observation cars

may be properly turned.

(9) Through Pullman cars are operated to various points, requiring switching from one train to another at junction points in order that the passengers in such cars may be given the benefit of through service. As a general proposition this method is not followed in connection with coach travel since in a great majority of cases it is necessary for coach passengers to transfer from train to train at junction points.

(10) Club cars are furnished by the car company or by the railroad, which cars Pullman passengers may use without

additional charge.

(11) Observation cars are used in instances in some of which lounging space is also provided without charge.

(12) The presence of Pullman equipment requires additional space in yards and terminals over that which would be necessary for coaches because of less carrying capacity, because of the amount of preparation necessary to condition cars and because of the storage of equipment of various interior arrangement called for on demand.

(13) The railroads, in arranging for the accommodation of Pullman passengers, quite frequently make use of the telephone and telegraph lines in securing space desired which

is a direct saving to the Pullman passenger.

The second witness was C. M. Burt, chairman of the Trunk Line Passenger Association, who stated that the eastern and southern carriers had undertaken the preparation of statements showing the dead weight haul per passenger in sleeping or parlor cars as compared with coaches; a comparison of space and dead weight occupied by a passenger in sleeping or parlor cars as compared with a passenger in a coach; the earnings of the average sleeping or parlor car as compared with the average earnings per coach and the trend of passenger traffic for the period of 1913 to 1922, inclusive, but were not able to complete the statements due to the volume of work involved in their preparation. He asked that a later date be assigned at which time the various statements could be submitted for the commission's study.

He said in part: "The so-called Pullman surcharge is for a special additional passage service to compensate the carriers in a measure for additional space occupied and the greater weight involved in the operation of sleeping or parlor cars and the added operation expense incident thereto as compared with coaches and is computed upon the basis of onehalf of the sleeping and parlor car rates for the character of space occupied in such cars, except that where no sleeping or parlor car rates are in effect it is computed upon the basis of 10 per cent of the railroad ticket fare. The average standard 12-section drawing room sleeping car accommodates approximately 27 passengers, the average parlor car, 31 passengers and the average coach 69 passengers, but taking travel as a whole throughout the country on trains carrying both sleeping or parlor cars and coaches, a sleeping or parlor car will average approximately 12.96 revenue passengers while a coach will average 27 revenue passengers. The average sleeping or parlor car weighs approximately 150,-000 lb., while the average coach weighs 99,000 lb. carriers contend that there properly should be a differentiation between a coach passenger and a sleeping or parlor car passenger similar to the differentiation between passengers occupying the various classes of sleeping or parlor car space since coach equipment and sleeping or parlor car equipment differ materially in comfort, convenience and exclusiveness.

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The sleeping car may be called a hotel on wheels and the services of the Pullman Company would be of no value to the traveler unless the transportation company moves the car to its destination. The carriers feel that they are entitled

to extra pay for the extra service rendered.

"The number of passengers using Pullman cars increased from 22,915,099 in 1912 to 31,748,385 in 1922, or 38.5 per cent while the total number of passengers carried by the railroads in 1912 was 944,265,173 and in 1922, 966,489,000, an increase of only 2.4 per cent. The charges imposed by the Pullman Company for its different accommodations are presumably reasonably based upon difference in space and service, but the charges collected by the Pullman Company are for its service and do not reimburse the railroad companies for the variety of weights and spaces occupied by passengers in Pullman equipment. Without the surcharge the compensation to the carrier would be the same whether the passenger occupies a seat in a coach or a berth in a sleeping car. If the rail fare in the coaches is reasonable and is accepted as standard, a consistent adjustment of fares in the higher classes of equipment made necessary by public demand, is a reasonable procedure, bearing in mind that the graduations in charges should not be so radical as to destroy parity and equity. Sleeping car and parlor car passengers enjoy more luxurious accommodations than coach passengers and for this reason the higher charge is justified. carriers contend that the surcharge is justified by the facilities provided, space occupied and the greater operating cost of handling sleeping and parlor cars as compared with coaches. Based upon experience, it is the judgment of the carriers that the present basis of computation is more equitable than a percentage applicable to the railroad fare for the reason that the present basis differentiates between the service afforded.

"During 1922 the aggregate freight and passenger return to the Class 1 carriers, based upon tentative valuation of the commission, was 4.14 per cent, while the passenger revenues of Class 1 roads of the country for that year were \$1,076,043,334, of which \$32,891,124 or 3.6 per cent of the total passenger revenue represented the earnings from the sur-

charge "

The stand was then taken by E. L. Bevington, chairman of the Transcontinental Passenger Association, who testified for the western lines. The testimony included an exhibit showing the dead weight per passenger in sleeping cars, parlor cars and coaches based upon the average number of passengers and average weight per car and the space per passenger based on average occupancy. The passenger occupancy in 1922 was 14.36 in coaches, excluding commutation, compared with 11.46 in sleeping and parlor cars; the weight of car pounds during May, 1923, was 96,647, compared with 144,640; the square feet of passenger average occupancy during May, 1923, was 37.74, compared with 56.63; the weight per passenger average occupancy in pounds during May, 1923, was 6,800, compared with 12,621 and the revenue per car mile average occupancy was 46.27 cents, compared with 40.28 cents including surcharge in sleeping and parlor cars, and 36.95 cents excluding surcharge. An exhibit of the earnings of average sleeping and parlor cars and average coaches for the fiscal year ending December 31, 1922, showed the average revenue per passenger mile on coaches and sleeping and parlor cars was 3.224 cents in coaches, compared with 3.515 cents in sleeping and parlor The revenue per car mile was 46.27 cents, compared 40.28 cents. The rate per passenger which carriers with 40.28 cents. would be entitled to charge in sleeping and parlor cars, based upon the difference between the average weights and average occupancy of coaches, sleeping and parlor cars was 3.224 cents, compared with 5.984 cents, while the revenue per sleeping and parlor car mile which carriers should receive was 46.27 cents compared with 68.58 cents. The passenger rev-

enue of Class 1 railroads increased from \$678,966,749 in 1913 to \$1,075,262,223 in 1922, or 58.37 per cent, while the Pullman gross revenue from cars increased from \$39,420,529 in 1913 to \$64,367,571 in 1922, or 63.28 per cent.

W. C. Wishart, controller for the New York Central and chairman of the Accounting Committee for the eastern carriers, presented several exhibits containing statistics on Pullman travel and the returns to the roads therefrom. He presented a set of figures showing the ratio of the Pullman surcharge to the revenue from passengers, which showed that in the last four months of 1920, during which the surcharge was in effect, a ratio of 2.37 per cent was shown; during 1921, a ratio of 2.91 per cent; during 1922, a ratio of 3.50 per cent and for the first four months of 1923, a ratio of 3.29 per cent. Figures compiled from the travel of 1,800 trains on 19 roads between May 1 and May 8 of this year show that 2,325 passengers traveled in parlor cars with an average weight of 140,407 lb., 3,627 traveled in sleeping cars, with an average weight of 140,915 lb., and 5,120 traveled in day coaches with an average weight of 124,140 lb. He stated that the average rate per passenger per mile was 3.2 cents, while the payment by the eastern roads to the Pullman Company for use of the cars was less than 1 cent a

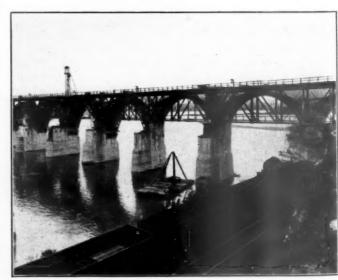
The last witness to testify was L. E. Wettling, statistician for the western lines. His testimony included figures showing passenger service operations in 1922, the trend of passenger traffic from 1919 to 1922 and operating revenues and expenses for Class 1 roads, excluding switching and

terminal companies.

During the hearing Commissioner Campbell suggested that the railroads give some attention to the fact that they assert they cannot forego the surcharge although they are able to maintain cut rate excursion service. He also stated that the two main questions involved were: Does the surcharge really discourage travel as contended by those who would do away with the surcharge which is nominally levied by the Pullman Company but actually collected by the railroads, and does the surcharge which in 1922 yielded the carriers nearly \$33,000,000, increase or decrease the revenue of the country's railroads.

The hearing adjourned on June 21 and will be resumed at San Francisco, Cal., on July 10 for the purpose of giving an opportunity to western state commissions, especially the Railroad Commission of California, to be heard. A final

hearing will be held at Portland, Me., on July 31.



New Reading Bridge at Harrisburg, Pa.

Traffic Studies Show Need of Balanced Budgets*

Train Movements Scientifically Scheduled Cut Down Side Track Delays and Speed Up Service

> By B. H. Mann Signal Engineer, Missouri Pacific

THE PURPOSE OF THIS STUDY is to show that the operation of a freight train district or sub-division is a mathematical problem and no longer a matter of mere energy. It substitutes scientific methods for traditional procedure and points out the connection between the assignment of items in a well balanced improvement budget and this mathematical operation.

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We consider four factors in our plant output of ton miles: (1) Ruling grade; (2) draw-bar pull; (3) gross tons per train, and (4) train speed in miles per hour. Further, every freight train district has a movement characteristic all its own, either a wave, a pendulum beat, a period or a cycle. For development of traffic capacity this "period" must be isolated. The train movement must be arranged in consonance with the period. The sidings and OS station spacing must synchronize with the period.

Would anyone overlook freight trains, under pay, spending 30 to 40 per cent of their trip time idle on side tracks while heavy outlays of capital are put into improved substructures? A misplaced siding may delay the average train on a sub-division eight or ten minutes with a cost to correct of only \$30,000.

In one plan of budget improvements, there may be possibly seven or eight freight train districts or sub-divisions which are not entirely satisfactory as to present performance and an even worse overload appears imminent. In such a case the worst sub-division is selected and large outlays poured into it for double trackage or grade reduction, building up the capacity of this sub-division far beyond its immediate traffic requirements and carrying therewith a large load of non-paying betterments. In the meanwhile, nothing can be done to the six or seven other sub-divisions which equally require relief.

Plan to Permit Growth as Traffic Increases

Our alternative plan contemplates the study of each subdivision and the evolving therefrom of such a rearrangement of siding spacing and handling as will fairly meet the existing demands. We would provide such a layout as to permit its growth co-ordinately with year to year traffic increases into the ultimate double track. Such a program will supply the needs of several sub-divisions at a cost often much less than the single comprehensive overhauling of the selected sub-division.

Waste by idle trains may be the outcome of lack of slight rearrangement or of addition to existing facilities. The study develops certain laws of single track operation and proves the money value of the mathematical operation of trains; it prompts the use of the locomotive booster, superheater, feed water heater, thermic syphon and arch, signaling, interlocking and, last but not least, a uniform scheme for the operation and arrangement of sidings and siding facilities.

The length of sub-division is fixed so that there remain as variable factors only tonnage and time. The superintendent's business reputation rests upon his output of carmiles, engine-miles and good service.

*Abstracted from an article presented before the annual convention of the American Association of Railroad Superintendents at Kansas City, Mo., on June 13, and copyrighted, 1923, by Bertram H. Mann.

Siding Delays and Train Operation

Formerly many practical transportation men felt that lap sidings from four to five miles apart on a single track line constitute its development to full capacity, due to the delay required to "head in" and "head out" while others believed closer spacing would increase the capacity. The delay incident to taking siding may be materially reduced by having all siding switches handled by the operators at the continuous service telegraph station sidings.

For a meeting on single track under our train rules, the "switch at which the inferior train takes siding" becomes a "bumping post" for the opposing train. With the recommended plan, it is feasible for both trains to "drift" the entire length of each individual siding at this meeting point. The next step in construction development as the traffic continues to increase is, of course, extending the individual sidings outward, as traffic demands, towards the ultimate double track.

There is another question that would seem worthy of some consideration and that is, should freight trains on a single track division be operated solely on a time card schedule or run extra? There are three plans feasible: (1) To run the trains as extras; (2) to run the trains on time card schedule made up by using some speed per hour for the run with meeting and passing points arbitrarily "strung" on the time card to fit superior trains; (3) to run the trains on schedules based both on such a spacing of leaving times as is found to be best suited to the operating characteristics of the division and, also, on the average performance of such trains as have actually left the sub-division terminal at about this interval apart.

Unforeseen contingencies are constantly arising and must be met with the most complete plan of movement. With a prearranged fixed time for leaving the terminal and a schedule based upon the actual average accomplishment, with meeting points of ordinary freight trains as a rule at open telegraph offices, there remains in the intermediate sidings the required reserve factor for contingencies. These include meeting points with superior trains or unforeseen delays during the "pinches" when, having lost the schedule, everyone knows that the endeavor is to get back in line.

Single Track Movements Must Be in Waves

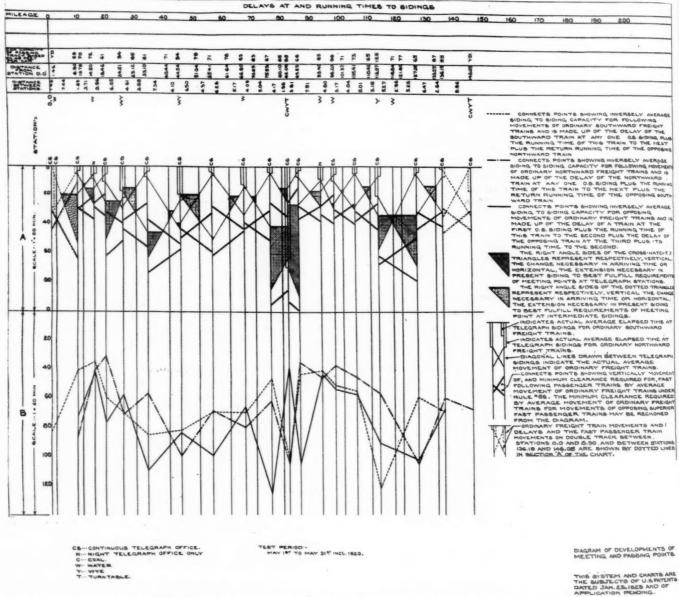
The movement of trains on single track must be in waves. The continuity of the flow is broken at the meeting and passing points. The best condition exists when the waves marked by adjacent sidings are equal and the continuity of the flow least broken at the sidings. The waves are made up of three parts: (1) The running time between the sidings; (2) the time required to "head in" and "head out" at the sidings, and (3) the time required at the sidings.

We name the sum equal to the time of the train at the siding plus the running time to the next siding, including the time needed to "head out" and "head in," the "time period." We name the time equal to the sum of the time of a train at a siding plus the time required to the next siding, heading out and in, plus the return trip of the opposing train to the first siding and any time needed for it

to "head out" and "head in," the "release cycle." The time period is the wave or motion one way of the "shuttle." The best condition of operating efficiency and capacity is created when this motion is not too long and is also uniform with its neighbors.

It is taken for granted that the counselor, in his design, will not consider the question of "fleeting" trains for the reason that waste is at once introduced by means of the delayed time of a train awaiting the arrival of the "fleet." It is also presumed that the employment of the method of

regard to traffic density. It is only a question of quantity as to whether there are trains meeting at every siding or at but few. The "release cycle" is measured when a train "A" meets opposing trains at two successive sidings. The second of the two following trains cannot leave its meeting point until the "go" of the train ahead and the "come" of train "A" complete the "release cycle." Any variation in time periods manifests itself in an increase in waste as delay at the siding. It is the contrasting average delays at the OS sidings which indicate immediately whether the



Graph Shows Locations Where Greatest Delays Occur. Vertical Lines of Triangles Represent Change Necessary in Arriving Time or the Horizontal Sides Represent the Extension Necessary to Present Sidings If No Change in Arriving

Time Is Made

"fleeting" trains and the use of blind intermediate sidings may be a part of the everyday operation in emergencies which constantly arise.

In the design of the sub-division this study uses the OS sidings as limits for the "release cycle" and takes for granted the provision of at least one intermediate siding for the necessary routine reserve factor for emergencies such as the delay to one train or the approach of a passenger or other superior train.

The time period should be reasonably uniform without

siding spacing is correct. It must always be borne in mind that a superior train standing at one station may delay an opposing inferior train at the next adjacent station just as much as if it were in motion between stations.

Eliminating Lost Time and Increasing Gross Tons

The Adamson Law may have its undesirable features but it also has one big asset, which is that it has convincingly pointed out the gain of the moving train as opposed to the loss of unproductive time. Punitive overtime stimulates a

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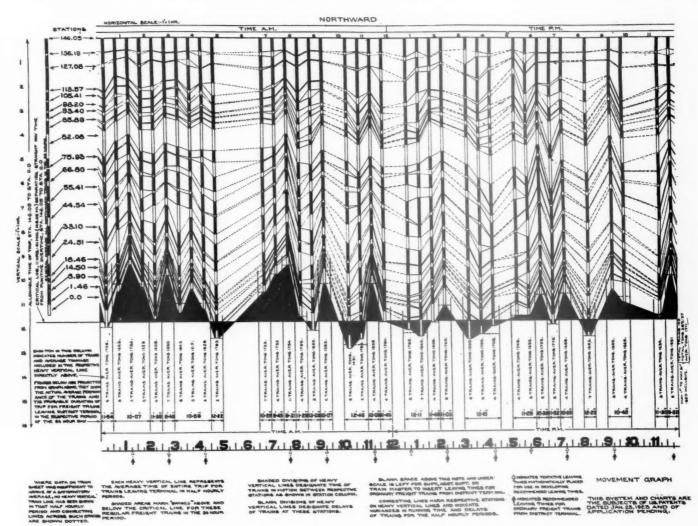
Ordinary freight trains standing in side tracks for more than 20 per cent of the entire trip are proper subjects for intensive supervision. An advance estimate of how a train ought to perform throughout a train sub-division, based solely upon examination of the track, becomes merely a theory. A similar impression based upon the work of an occasional train becomes a mere opinion.

A sub-division plant turns out ton-miles as its finished selling product. It buys train hours as its raw material input. An increase in gross tons may be expected to increase the non-productive time in side tracks so that the motive

sidings, another is the time required for service or work at the station.

Units in Track Capacity Studies

The units which stand out prominently in track capacity studies are: (1) The time period required by a train at one siding plus the time required to move to the next and get "in to clear"; (2) the sum made up of the delay of the train in the westward direction at an OS siding plus the running time to the next siding plus the return time of the opposing eastward train; (3) the sum made up of the delay of the train in the eastward direction at an OS siding plus the running time of this train to the next adjacent siding, plus the



Individual Time Cycles Compiled from Average Schedules from Which the Best Available Spacing of Leaving Times from Terminals Is Selected as Shown on the Clock Time Scale

power aids, such as the "arch," the thermic syphon, the superheater, and the booster, must be supported by Track Capacity Helps, such as the respacing of sidings, adding of signaling and interlocking and proper arrangement of other engine and train service facilities at stations.

It would appear quite undesirable to add money to one pocket by increased loading while at the same time taking it in part from the other through increased waste time on side tracks.

In the art of handling a single track railroad freight sub-division, any consideration of "miles-apart" in locating the siding is wide from the point; the question solely in hand is the "minutes-apart." The matter of gradient is one of the factors in fixing the number of minutes-apart for the return running time of the opposing westward train. Under train rule superiority and single track operation these units fix the traffic capacities and it pays to study the district from these various points of view before reaching a conclusion.

We pick the OS sidings for the reason that a reserve factor must be allowed in a practical scheme of operation to cover the emergencies and this is offered by the blind intermediate siding. We know that the whole district train movement must be based on its use of, and departure from, the telegraph station sidings. We propose to reduce the unproductive time at the stations.

It is quite necessary for the dispatcher to know for future planning whether each train is keeping in step and making good on each "period" and "cycle" and this information can well be given at the end of each "period" and "cycle." It follows that if it is determined from the data at hand that the physical characteristics of a single track sub-division permit a "cycle" of one hour for starting ordinary freight trains from the terminal and operating them over the sub-division, the telegraph stations should be spaced in unison. This has been checked with their actual spacing and found good practice.

Sidings Fixed for Community

Service May Cause Losses

The traffic requirements of ticket sales or handling freight should not be preferred factors in the location of the OS telegraph offices. The saving practicable on a \$50,000 a month expenditure for freight train expense on a freight sub-division by a correct location of the continuous service telegraph station sidings, is too great to be controlled by meeting-the-public reasons which apply to but a fraction of the 24-hr. day and can usually be more economically handled otherwise

A 145-mi. freight train trip, made on the average in 12 hr. 5 min. and costing \$201.09, represents 28.7 cents a minute or \$17.21 per hour. With road service practically the only creator of "ton-miles" we must jealously watch each idle train-minute spent on any track.

Devices are available that will pay for themselves in three months, six months or a year and that in doing so will add 200,500 or even more tons to a freight train, depending upon the physical characteristics of the road. Such devices should make up a good part of any improvement budget. A booster that will add 350 tons to the train load over the entire train district by 16 per cent increase in tractive power on the usual few short pulls with but 5 per cent increase in static weight; an interlocking plant; an isolated remote control switch should each be a first preferred item.

Balanced Expenditures Needed

A broad decision as to the balancing of various classes of expenditures must be made. In one recent case an expenditure of \$30,000 for a "Traffic Capacity Help" added 400 gross tons to the trainload with a return of 70 per cent per year on the investment.

The fixed and steady burden of the few heavy increases in capital charges, such as double tracking, grade reduction, and bridges for heavy power should be assigned to their proper balance in the budget with the "constant, steady stream of relatively small expenditures" for track capacity which may be depended upon to give immediate returns in direct ratio to the normal increase in traffic. There will be, under this policy, no improvements proposed which would be thrown away later on account of double tracking when the traffic density really forces consideration of such an expenditure.

Speed Requirements and Effect on Costs

An average speed is required for freight trains, between stops, of 20 miles per hour or greater, so that due leeway may be allowed for reasonable delays at stations and yet the average rate of speed between terminals held above the critical line separating punitive overtime from the straight pay of 12½ miles per hour. In justifying this average of speed, it becomes desirable to study roughly the account, "Cost of Train-miles, Freight Trains." The amount of money involved per month in this account for a single track sub-division of reasonable traffic density often is more than \$50,000 and sometimes reaches \$75,000. This amount is divided approximately into thirds for the items: (1) Locomotive Repairs; (2) Wages, and (3) Fuel. A saving of one per cent means from \$500 to \$750 per month and the effort made towards such end becomes, thereby, well worth while.

The distribution of accounts on the mileage basis, which

is in a fairly constant ratio to the hour basis, makes it simple and practicable to find, in a convincing way for the practical man, the money equivalent of the time saving returns of our various track and equipment attachments under present operating conditions. We should all aim upwards for a performance of "20 miles per hour in motion between sidings" and downwards for "20 per cent of trip on side track." In passenger terminal work, the minimum "reserve factor" as developed by experience, for flexibility in allowing the spacing of independent schedules, has been two to one, viz: as much time between trains as required by each train.

Effect of Variation of Periods

A study of the operation of the usual freight train subdivision will show, as a rule, a wide variation in the average "period" between telegraph offices. If the train periods between several adjacent sidings vary within wide limits, the whole remaining dependent movements in that vicinity shut down for an interval when one period is noticeably longer than the remaining dependent and interlocked movements. The latter must await "their turn," therefore the "turns" between sidings must be reasonably uniform if a fairly steady train movement is expected. Anything else quickly brings "lag," made up oftentimes of wasteful delay on side tracks.

To make a single track do the work of a double track on a sub-division as far as the probable traffic density is concerned, consists in forwarding the trains from the subdivision terminal at such times as the developed experience by actual average performance demands and in "putting your house in order" as to keeping in step the time "period" between sidings.

There may be train hurdles such as "pockets" or "blank walls" scattered throughout the district or sub-division 24-hr. day. These "blank walls" are created by "siding time spacing periods" being poorly matched, together with an unfavorable combination of superior trains. The cure is to change the schedule so as to miss the "blank walls" or to secure a betterment appropriation for either the rearrangement of sidings or signaling, or both, at the spot to reduce the "time period" and make "an opening in the wall.". Fortunately, as a rule, a small capital expenditure is necessary or a relatively unimportant change in method is required. In railroad operation, selected attachments often will make a single track line do the work of a double track line nicely, as far as both existing and prospective traffic density demands.

Remote Controlled Switches Help Operation

From the financial return viewpoint one can hardly afford to have the train crews handle switches at continuous service telegraph offices on "big power" districts. With a rule requiring uni-directional traffic on the sidings, the heading-in point being at the "lapped ends," it is relatively cheap to install mechanical interlocking levers in the telegraph office to handle the switches. A spring switch at remote ends of sidings (with a shock absorber to protect the switch point, and with automatic electric signals to register the contact of the switch point with the stock rail), or else a remote control operation will save a stop for the trains in heading out and are helps which are being used successfully.

The study of the problem should be given the necessary support and appreciation. One reason it has not preceded in its field the scientific advance of the telephone, is not only the fact that the great number of transportation executives have no leisure for deep study and therefore for creation of the necessary statistics, but also that such men can neither adequately understand nor interpret such statistics for other classes of men.

The Need of a Research Organization

It follows clearly that there must be some skilled research organization which has the necessary familiarity with movecal of

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ment of trains built up to handle such work for our busy division and general transportation officers. Its name might be expressed by the term "Traffic Capacity Counseling."

For the purpose of study of single track operation by this "system" I have developed the following:

RAILROAD OPERATION

Laws of Single Track Capacity

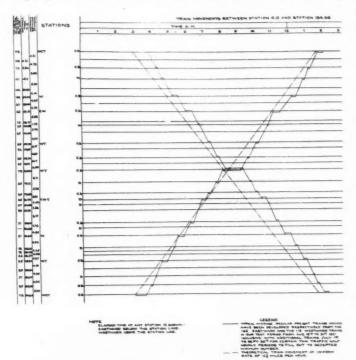
Unit of Freight Train Operation.—The normal unit for study of freight train operation is the sub-division (district).

(2) Measure of Efficiency.—The measure of efficiency of the

district for the ordinary freight train is the movement of the av-

(3) Meeting Point.—A meeting point is complete when the trains are "in the clear."

(4) Capacity Varies with Time Spacing of Sidings.—The capacity of a district for ordinary freight trains varies inversely



Typical Average Freight Train Movements Based on 142 Eastward and 115 Westward Trains. Dot and Dash Lines Represent Theoretical Train Movement at 121/2 m.p.h.

with the maximum time between being "in the clear" at adjacent sidings and may be increased by decreasing this time whenever the latter may be excessive, either (1) to take siding, (2) to perform other service, or (3) to make the run between stations.

perform other service, or (3) to make the run between stations. (5) Capacity.—The greatest capacity follows with least waste such operation of a single track district that each freight train meets an opposing freight train at each siding.

(6) Opposing Movements.*—For the meeting point at siding B in a consecutive series of sidings A, B and C, the delay at A to that train which is approaching B from towards A plus trunning time from A to B should equal the delay to the opposing train of the pair at C plus its running time from C to B.

(7) Capacity of Opposing Movements.—For the greatest capacity and efficiency the sum of the delay and subsequent running time between adjacent sidings for either train of a pair must be the same for any meeting point on a district.

the same for any meeting point on a district.

(8) Opposing Movements of "Fleets of Trains."—Fleeting trains increases capacity at a sacrifice of economy through the delay consequent to moving the "fleet" into the meeting point.

(9) Following Movements—Theoretical Spacing.*—The minimum best theoretical spacing of following freight trains in leaving district to the same and consequents throughout a district is fixed by a district terminal and operating throughout a district is fixed by the cycle of movement which is the sum of the running time of a train from siding A to siding B, plus the return trip of the opposing train from B to A plus the time for inferior train to enter and leave siding.

Capacity for Following Movements.-For greatest capacity and efficiency, the cycle of movement between adjacent sidings for spacing following trains should be the same for each two adjacent sidings on the district.

adjacent sidings on the district.

(11) Following Movements Actual Service Spacing.†—The best actual service spacing for following freight trains in leaving a district terminal and operating throughout a district is fixed by the cycle of movement which is the sum of the delay at station A to that train which is approaching station B and A plus the running time from A and B plus the return running time B to A.

(12) Delays Due to Time Card and Train Order Operation.—Conferring superiority by right, class or direction under the existing train-rule plan may create unproductive time and thus become due to the contrasting inferiority, an adversely limiting factor of the capacity of the train district in case of any delay at the siding. the siding.

The Development of Money Saving Schemes

I develop from the charts and graphs: (1) The traffic capacity of the sub-division; (2) the best available schedules for the operation of ordinary freight trains on the subdivision as it stands, and (3) (a) the correct location of siding, (b) the best physical handling of siding switches, and (c) location of station train service facilities, to secure an improvement in the existing transportation plant, both without excessive capital outlay or production of non-paying

I believe that a satisfactory, sound and money saving scheme of traffic capacity development for road improvement work and methods listed in order of preference to increase capacity on single track lines and at the same time avoid non-paying and burdensome betterments is to:

(a) Rearrange the location of sidings in accordance with the best available siding spacing cycle for estimated traffic requirements.
(b) Relieve the trains at continuous service telegraph sidings of handling the switches, including the remote ends of both laps, by installing mechanical connections for the near switches and low voltage remote control connections or automatic spring points for the far switches for the far switches.

(c) Assist the train dispatcher in preventing non-productive time due to delays at sidings, by (1) Installing isolated controlled manual blocks to move trains between the continuous service manual blocks to move trains between the continuous service telegraph siding and the non-telegraphic siding next adjacent in either or each direction; (2) Rearrange water supply and coaling stations so as to permit service on more than one track, in one convenient location to avoid extra moves and to suit the

traffic.
(d) From time to time, as traffic requires, extend one or both ends of sidings with the signaling until, eventually and coincident with the business demands, the complete double track is supplied. For motive power improvement work and methods install the arch, thermic syphon, feed water heater, superheater and "booster."

An intelligent, systematic and comprehensive program of relatively inexpensive improvements for the benefit of the ordinary freight train may be reasonably expected to result in an attractive new average movement of 20 miles per hour between OS stations and 20 per cent of total trip on OS side tracks.

The Graphs and Their Use

The movement of the average ordinary freight train has been graphically outlined in the graphs. On the upper left hand edge of the graphs is set up one average train for the entire test period. Stretched across the upper half of the graphs, and on the same scale for comparison's sake, are test period trains segregated into half-hourly average groups throughout the 24-hr. day. The minimum number of individual trains, making up the average for each half-hourly period, is three. The variations, as between both the average running times and delays both at each OS station and for the complete sub-division trip, are thus brought into prominent notice.

Opportunity is so given for local study of the performance at each OS station and for each half-hourly period. does not always follow that the presence of superior trains

^{*}Note-(6, 9, 11) The exception is a yard which absorbs trains without interference to or from opposing trains.

[†]Note—At a district terminal, time ends when the train is placed on designated track or crew relieved.

or physical misfits of the sub-division are the sole cause of waste. It may be that a train master, with the information before him, may materially improve operating methods at an OS station for a certain period of the day and make, thereby, a marked improvement in the entire sub-division output. The average ordinary freight train is the product which is feeding through the plant. Cutting out a section of waste time anywhere affects the entire sub-division movement for the better.

The graphs, in addition to their use as an aid to the transportation officer in making a study of his plant, also furnish a recommended time table for the operation of ordinary freight trains through the clock time scale near the bottom of the graph and the time cycle, as the best available leaving times of trains from terminals may be plotted on the graphs

The basis of such a plotted recommendation is that a repetition of an actual average performance may also be reasonably expected. The undesirable performances are avoided in picking out tentative schedules.

One graph illustrates, in a way, the gain that is practicable by the method of "running through" instead of tying up one crew and calling another. A diagram shows the comparison of an actual average schedule with the theoretical 12½ mi. per hr. line.

Use of the Clock Time Scale

The individual time cycles are compiled from the average schedules and tabulated for each OS siding spaces. From this table is selected the best available spacing of leaving times from the terminal for following trains. This is plotted below the clock time scale by the blank arrows and with the help of the half-hourly average the best tentative leaving time for ordinary freight train may be selected and plotted by the full arrows.

With selected times designated by the full arrows as starting times and actual average half-hourly schedule accomplishments as recorded on graphs, a tentative printed time table is developed upon which to base the actual daily operation of trains or to plan for new traffic requirements.

From the facts brought into prominent notice by the graphs and diagrams coupled with local studies of the district, decision may be quickly reached as to how to bring in step the various siding spacing periods and cycles and whether it will be advisable either to "head in" or "head out" by signaling or interlocking, lessen the service time at siding by rearranging water facilities, etc.

From the data which have been presented I believe that I am well warranted in concluding that before any extensive outlay is authorized for either double track, grade revision or heavy power, there should first be made a thorough scientific transportation survey of any freight train district to develop the possibilities of traffic capacity increase by both the addition to or rearrangement of present single track facilities and the addition to the locomotive of the arch, thermic syphon, feed-water heater, superheater and "booster."

I also believe that a thorough scientific transportation survey of any busy freight train district is fully warranted for use by the officers: (1) In conference with traffic people as to what can be done with ordinary freight trains; (2) in making time cards for ordinary freight trains, and (3) in forwarding and operating ordinary freight trains.

Quick Restoration of Wire Service at Broad Street Station

THE BURNING of the train shed of the Pennsylvania railroad at Broad street station, Philadelphia, on June 11, involved partial destruction of about 500 wire circuits, the majority of which were for telephone connections, besides some 35,000 ft. of twisted pairs used for fire alarm connections, call bells and other services; and within 72 hours after the fire started, the telegraph and signal department had 400 pairs of wires ready for use, many of them suspended from the housetops on Filbert street and connected thence to the wire terminal room in the office building where connection is made to the general office tele-



View in Broad Street Station Trainshed, Philadelphia,

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to th liic phone and telegraph instruments. Intermediate pole supports were provided on the west side of 15th street.

The circuits destroyed were briefly-

One 102 pair, one 78 pair, one 75 pair, one 30 pair, and one 33 pair paper and lead cables used by the Philadelphia



Fig. 1

Terminal division for telephone and telegraph purposes.

One 53 conductor rubber insulated lead cable.

One 20 pair rubber insulated lead cable used for the telephone and telegraph system.

Three 19 conductor rubber and braided signal cables.

One 7 conductor rubber and lead power cable.

Two 1 conductor rubber and lead power cable.

One 24 conductor paper and lead telegraph cable used by the Postal Telegraph Company.

35,000 ft. twisted pair as noted above.

Fifteen telephone sets, fire alarm switchboard batteries, etc.,

in the 16th street power house, together with associated apparatus in the train shed including 12 electric docks.

The Western Electric Company was called at 4:15 a. m. on Monday, June 11, and by 7:15 had delivered the first load of No. 17 twisted pairs, amounting to 75,000 ft. By afternoon about 300,000 ft. had been delivered and most of this was put in use in a very short time after it was on the ground. The division superintendents had been connected with the general offices before noon. The Western Electric trucks were kept running day and night until Wednesday evening, the 13th, by which time they had delivered



Fig. 2

over 10,000 Mazda lamps with large quantities of sockets, batteries, flashlights, telephones, heat coils and other material, in addition to 9,000 ft. of 12-pair emergency cable.

The wires strung on the housetops north of the station (Filbert street) are shown in Figs. 1 and 2. Fig 2 shows



on Wednesday, June 20, Nine Days After the Fire

the wires leading around to the front side of the office building where they were carried in through windows.

The magnitude of the work of restoring the tracks in the train shed is illustrated by Fig. 3, where the distortion

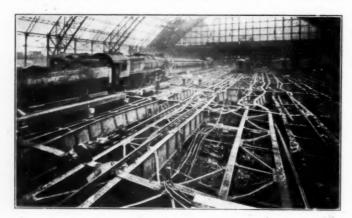


Fig. 3

of the beams by the heat is shown, which photograph was taken on Wednesday, June 13, and the large, double-page photograph which was taken on the 20th.

Vauclain Discusses Transportation Situation

THE RAILROADS will be compelled to expend approximately \$1,500,000,000 a year to keep pace with the growth and demand for transportation service, according to Samuel A. Vauclain, president of the Baldwin Locomotive Works, in a paper which was read before the Chicago Association of Commerce by Grafton Greenough, vice-president of the Baldwin company on June 20. Mr. Vauclain declared that unless this sum is expended the business of the nation will suffer severely. He also urged careful attention to the reduction of the cost for labor per unit of work performed rather than simply of the price of labor. The movement for government ownership was characterized as a national menace which could be prevented only by national discussion and knowledge of the problem.

Mr. Vauclain's paper in part was as follows: At this time the United States is enjoying the most consistent and substantial prosperity that has been experienced in years. At the present time there is practically no inflation in any branch of business. The fundamental of prosperity is labor or work. Without conscientious labor, nothing can be produced, either on the farm or in the factory. Therefore, if we are to enjoy a continuance of the present prosperity, it is essential that we analyze the situation and ascertain upon what the general business of the country depends for its maintenance. If a careful survey is made you will ascertain that the general business of this country depends primarily upon its transportation facilities. Without transportation facilities equal to the ordinary demands of business, ordinary business must lag behind and must be satisfied with what can be accomplished with the transportation that is offered.

Too much attention is now being given to the cost of labor. Money paid for labor goes into immediate circulation and is more widely distributed than that spent in any other way. A decrease in the price of labor at this time would indicate a reduction in business. Don't worry about the price of labor, but about the cost of labor per unit of work performed. It should be the constant effort of every manufacturer to employ mechanical appliances and perfect

machinery of all kinds in order to increase the effectiveness of labor and thus reduce its cost.

At the Baldwin Locomotive Works our labor cost during the last decade, which was a period of the highest labor prices, was only 28 per cent of the value of our product; whereas, during the two previous decades, a time when lower labor rates prevailed, the labor cost was respectively 32 per cent and 34.8 per cent of the invoice value of the work produced.

The railway transportation companies of our country have been foremost in this matter. They manufacture transportation and to that end have consistently utilized engineering science and modern inventions of all kinds, regardless of the high prices of labor, to reduce the unit cost to the consumer of transportation facilities, and notwithstanding the high price of labor, furnish service unequalled in any part of the world.

Transportation supplies not only the farmer, but also the builder and the producer, with all the materials of every kind that go into general consumption to meet the requirements of the people. The fellows engaged in large enterprises are entirely dependent upon the demands that are made upon the transportation companies for the conduct of the general business of the nation, and it is only when our transportation facilities are inadequate to meet the demand for the maintenance and common welfare of the community at large that normal purchases are made from the larger industrial companies. It supplies not only the locomotive builder, the car builder and the steel maker, but in fact the needs of all the large industries of the country that are necessary for the manufacturing of transportation supplies.

The people should realize that the transportation lines of our country are not owned personally by men of wealth, but by the general public, by stockholders of various grades ranging from a few shares probably to much larger holdings. The farmer should become a stockholder in the railroad that road, take pride in its achievements and participate in its profits; he should contribute to its advancement and should serves him; he should learn to look upon that road as his in no way hinder an improvement that would ultimately be to his advantage. In so doing he would not only be serving himself, but would at the same time be assisting others to obtain service that would in turn make them stockholders of the same public utility or transportation line.

The average annual increase in our transportation business during the past 10 years was approximately 7 per cent per annum, and if we are to continue to grow as we have grown in the past, it will require an expenditure by the transportation systems of this country of a sum equal to that being expended during the present year, namely, \$1,500,000,000. The food producing section of the country is far removed from the places of the greatest consumption and if it were not for our transportation facilities, many of the products and fundamentals of existence would not be so generally available throughout the country. But for these public utilities which are today so maligned by political demagogues and parlor bolshevists and "undermining" engineers of all grades, the fruits of the western coast and the products of the south, would have no markets in the east and north.

The question of government ownership of our railways is the most important one that we have to consider at the present time. Everything should be done by those who are interested in the welfare of our country to prevent such a catastrophe. Such prevention can only be accomplished by education. The voters must realize that the railways are more essential to their prosperity and enjoyment of life than any other of the various public utilities which we now so greatly enjoy. The railways are the main arteries of life, the main arteries of business and also the main arteries through which flows the life-blood of the nation, and in proportion to their capacity and speed of action will depend the future

greatness of this country. It is my business and it is your business to go out among our fellows, among those who work with us, and discuss with them this problem, weigh it carefully, put it advisedly and without prejudice. It will require the utmost effort to convince the working men of this country, the business men of this country and the coupon cutters of the country, that without prosperity among our American railway systems, their occupations will be greatly impaired, and suffering to the general public will ensue. Our railways should be compensated for the services rendered to the extent of keeping their properties in condition to supply increased facilities to our demands for service, and at the same time to pay a reasonable sum of interest to their stockholders in order that confidence can once more be restored in this most essential branch of modern industry.

Train Control Installations

JURSUANT to order number 13413 of the Interstate Commerce Commission directing 49 railways named therein to install automatic train stop or train control devices upon designated portions of their roads, a number of the railroads have selected the devices which they wish to install as trial or permanent installations. The order requires that the installations be completed by January 1, 1925. Since the order was originally issued the commission has authorized changes in the territories on a few of the roads.

The railroads listed in the order, the limits of the territory specified, and the devices selected to date follow:

A. T. & S. F.-Chicago to Shopton, Iowa, 234.6 mi. double track.—Union Switch & Signal Company's continuous induction now being installed on about 104 mi.

A. C. L.—Acca, Va., to South Rocky Mt., N. C., 114.6 mi. dou-

A. C. L.—Acca, Va., to South Rocky Mt., N. C., 114.6 mi. double track.—General Railway Signal Company's tapered control.

B. & O.—Baltimore, Md., to Washington, D. C., 36.3 mi. double track.—General Railway Signal Company's tapered control. Test installation, Baltimore to Relay, 9 mi., 6 engines.

B. & A.—Springfield, Mass., to Albany, N. Y., 101 mi. double track.—Devices not selected. This company is joining with the N. Y. C. on an installation between Toledo, Ohio, and Detroit, Mich.

B. & M.-Boston, Mass., to Greenfield, 105.6 mi. double track.-Union Switch & Signal Company's continuous induction; 13.7 mi.

to be installed at once.

B. R. & P.—Rochester, N. Y., to Ashford, 12 mi. double track, 82 mi. single track.—General Railway Signal Company's tapered control. Trial installation on 15 mi. being made.

C. R. R. of N. J.—Red Bank, N. J., to Winslow Jct., 65.9 mi.

C & O.—Gordonsville, Va., to Staunton, 61 mi. single track.—American Train Control Company. Already installed on 21 mi., Gordonsville, Va., to Charlottesville, and is being extended to

C. & A.—Chicago, Ill., to Bloomington, 126.6 mi. double track.— National Safety Appliance Company. Test installation, 14 mi.—

National Safety Appliance Company. Test installation, 14 mi.—Lexington, Ill., to Normal—being made.

C. & E. I.—Yard Center, Ill., to Danville, 105.4 mi. double track.—Miller Train Control Corporation. Installation now in service.

& E.-Marion, O., to Huntington, Ind., 126.6 mi. double

track.—Devices not selected.
C. & N. W.—Boone, Ia., to Council Bluffs, 149 mi. double track.
—General Railway Signal Company—tapered control: A 16-mi. test installation is being made between West Chicago, Ill., and

Elgin, not on selected territory.

C. B. & Q.—Creston, Ia., to Omaha, Neb., 44.3 mi. single track, 63.4 mi. double track.—Federal Signal Company, induction. Test installation of about 6 mi. to be made first.

C. I. & L.—Bloomington, Ind., to New Albany, 97.1 mi. single track.—First section to be installed between Orleans and New Albany, 56.5 mi.—Davice not selected.

Albany, 56.5 mi.—Device not selected.

C. M. & St. P.—Bridge Switch, Minn., to Hastings, 108.1 mi. double track.—Devices not selected.

C. R. I. & P.—Blue Island, Ill., to Rock Island, 165.4 mi. double track.—Regan 'Safety Devices Company. Present installation Blue Island, Ill., to Joliet to be extended.

C., St. P., M. & O.—St. James. Minn., to Le Mars, Ia., 122.6 mi. single track.—This company is joining with the C. & N. W. in

tests of the General Railway Signal Company's device. Devices

C., N. O. & T. P.—Ludlow, Ky., to Somerset, 78 mi. single track, 78.5 mi. double track.—General Railway Signal Company,

track, 78.5 mi. double track.—General Railway Signal Company, tapered speed control. Test of intermittent induction type to be made between Ludlow and Williamstown, Ky., 35.2 mi.

C. C. & St. L.—Indianapolis, Ind., to Mattoon, Ill., 128.3 mi. single track. This company is joining with the N. Y. C. in an installation between Detroit and Toledo. Devices not selected.

D. & H.—Whitehall, N. Y., to Rouses Point, 113 mi. single track.—Federal continuous induction type. A test installation between Colonie and Albany, 3.51 mi. is to be made.

tween Colonie and Albany, 3.51 mi., is to be made.

D., L. & W.—Elmira, N. Y., to Buffalo, 146 mi. double track.— Device not selected.

Device not selected.

ERIE.—Port Jervis, N. Y., to Susquehanna, Pa., 104.2 mi. double track.—Device not selected.

G. H. & S. A.—San Antonio, Tex., to Houston, 200 mi. single track, 10 mi. double track.—National Safety Appliance Company. Test installation of 51 mi. to be made first.

G. N.—Minot, N. D., to Williston, 121 mi. single track.—Device not selected.

vice not selected.

I. C.—Champaign, Ill., to Centralia, 124.7 mi. double track.— Device not selected.

N. C. S.—Met. Jct., Kansas City, Mo., to Pittsburgh, Kan., 121 mi. single track.—Device not selected.

L. V.—Newark, N. J., to Easton, Pa., 34.6 mi. double track, 24.8 mi. three track, 6.2 mi. four track.—Device not selected.

L. I.—Territory not decided. This company is a party to tests of Union Switch & Signal Company's device on the Lewiston branch of the Penperlugic.

branch of the Pennsylvania.
L. & N.—Corbin, Ky., to Etowah, Tenn., 165 mi. single track.— Device not selected.

M. C.—Detroit, Mich., to Jackson, 79 mi. double track.—This company is joining with N. Y. C. on a test installation between

Detroit and Toledo.

M. P.—Kansas City, Mo., to Council Grove, 150.1 mi. single track.—National Safety Appliance Company. Short test installa-

track.—National Safety Appliance Company, Short test installation to be made first.

N. Y. C.—Albany, N. Y., to Syracuse, 10.5 mi. double track, 129.2 mi. four track, 8.2 mi. five track.—Bids have been received and submitted to the Interstate Commerce Commission for an installation between Detroit and Toledo.

N. Y. C. & St. L.—Chicago to Ft. Wayne, Ind., 128.4 mi. single track, 14.2 mi. double track.—Device not selected.

N. Y., N. H. & H.—Air Line Jct., Conn., to Springfield, Mass., 62 mi. double track.—Union Switch & Signal Company, continuous induction. Test installation Air Line Jct. to Wallingford, 10.5 mi.

N. & W.—No decision. This road is a party to tests being made of Union Switch & Signal Company's device on Lewistown Branch of Pennsylvania.

of Pennsylvania.

N. P.-Mandan, N. D., to Dickinson, 109.3 mi. single track.-Device not selected.

O. W. R. R. & N.—East Portland, Ore., to Pendleton, 193.6 mi. single track, 23.1 mi. double track.—Device not selected.

Pennsylvania System.—Territory not decided. Union Switch & Signal Company, continuous induction test installation being made, Sunbury, Pa., to Lewistown, 50 mi. Not on the territory named in the order. named in the order.

P. M.—Application for change in territory has been made.-

P. M.—Application for change in territory has been made.—
Union Switch & Signal Company, continuous induction.
P. & R.—Camden, N. J., to Atlantic City, 55.5 mi, double track.
—Union Switch & Signal Company, continuous induction.
P. & L. E.—Pittsburgh, Pa., to Youngstown, O., 18.9 mi, double track, 1.7 mi, three track, 45.5 mi, four track.—Joining with N. Y. C. in the installation from Detroit to Toledo.
P. C. C. & St. L.—Territory not selected. This company is a party to the tests being made of the Union Switch & Signal Company's device on the Lewistown branch of the Pennsylvania.

pany's device on the Lewistown branch of the Pennsylvania. R. F. & P.—Richmond, Va., to Washington, D. C., 116.5 mi

double track.—Device not selected.
St. L.-S. F.—Springfield, Mo., to Monett, 39.7 mi, single track.
4 mi, double track.—National Safety Appliance Company. Test

4 mi. double track.—National Safety Appliance Company. Test installation, Nichols Jct., Mo., to Brookline.

SOUTHERN.—Spencer, N. C., to Greenville, S. C., 153 mi. double track.—General Railway Signal Company's tapered control. This company is joining with the C. N. O. & T. P. in a test installation S. P.—Oakland, Cal., to Tracy, via Port Costa, 51 mi. single track, 24 mi. double track.—National Safety Appliance Company.

Test installation Hayward to Halvern now in service, not on selected territory.

U. P.—Territory not selected.—Union Switch & Signal Company's continuous induction. Test installation of about 5 mi. to be

made at once.

W. J. & S.—Territory not selected. This road is a party to tests of Union Switch & Signal Company's device being made on the Lewistown branch of the Pennsylvania.

-Hagerstown, Md., to Cumberland, 80 mi. single track .-Device not selected.

The Superintendents at Kansas City

A PARTIAL REPORT of the convention of the American Association of Railroad Superintendents at Kansas City, Mo., on June 13, 14 and 15 was given in the Railway Age of June 23. Additional features of the proceedings will be found below.

Checking Overs and Shorts with Connecting Lines

A resolution was adopted at the 1916 convention to the effect that the association urge on the American Association of Freight Agents that at such junction points as are without local divisions and the number of railroads justify, they establish either additional divisions or over, short and damage bureaus; the agents of these divisions or bureaus to meet weekly, bi-weekly, monthly or at such intervals as conditions require, to check or match over and shorts on less carload freight, and at the same time take action to correct errors in packages, improper marking, etc. It was also urged that at junction points of less importance, where but two or three lines interchange a small volume of less carload freight, and of insufficient importance to maintain divisions or bureaus of the local freight agents, the superintendents require their agents to confer promptly when receiving a bill without a package or a package without a bill-thus matching up over and shorts without delay, or placing them in a position to seek prompt disposition intelligently.

Although the 1917 meeting of the association was annulled, the committee reported that these recommendations were concurred in by the American Association of Freight Agents and urged that the superintendents require their agents to carry out these recommendations and also to see that the rules of the American Railway Association covering handling of package freight are enforced. The chairman of this committee was also instructed to appoint a subcommittee to consider a revision in method of handling and billing 1. c. 1. freight, investigating methods employed by express companies which provide for special marking and billing for each package, pasting of bill on package, etc.

Report of Sub-Committee

This sub-committee through its chairman, G. O. Brophy, assistant to general solicitor, U. P., submitted a report from which the following is abstracted.

The method used by the express company is good and reduces clerical work to a great extent, but it would not apply on railroads in billing freight. A plan was advocated where the originating station would make enough copies of waybill so that on the arrival of the freight at its destination, there would be a copy for the auditor and a copy for the record of the station, while the expense bill would be a copy of the original bill so that the agent at the receiving station, upon receipt of the waybill, is privileged to go ahead and check his freight immediately and have his copy signed by the consignee and effect an immediate delivery. the practice on most roads where consignees sign, it is necessary that the expense bill be made out before delivery of the freight in order to get a proper receipt from the consignee. In some cases in order to effect an immediate delivery, a receipt is taken on the waybill by the carrier, and the expense bill is made out later and signed, but this is not a satisfactory arrangement for the reason that it delays delivery and in handling local freight the drayman or transfer man has nothing to show to the consignee that he has delivered the full consignment.

A plan for the checking of overs and shorts at Kansas City by means of an O. S. & D. bureau was then described in some detail, this plan involving a weekly meeting of representatives of the 13 roads entering that terminal at which time overs and shorts are matched. The estimated cost for maintaining this bureau at Kansas City is about \$20 per month.

Discussion

This report was accepted by the association and ordered referred to the American Railway Association with its endorsement.

In the discussion of this report A. E. Boughner (M. K. & T.) brought up the question of the possibilities for saving large sums through the adoption of universal through billing, stating that a recent survey showed that approximately \$200,000 could be saved at St. Louis alone. Attention was called to the fact that this question has received the endorsement of the freight station section of the American Railway Association and has been submitted to the individual roads for ballot. The superintendents' association vôted to support the action of the freight station section in this matter and to urge a favorable vote by the roads.

Report of Interchange Committee

The report of the Interchange committee contained a number of recommendations relative to equipment and its loading which were adopted by the association. Among these recommendations were one to the effect that dressed lumber of short lengths loaded in open or closed cars be elevated not less than six inches at the extreme ends and another recommendation to the effect that the height of dressed lumber on open cars should not be greater than seven feet above the floor. The committee advocated the adoption of uniform lettering of cars. It also advocated the equipping of cars with a standard end door equipped with standard fastenings, and recommended that each road should adopt and adhere to a standard period for the lubrication of cars and that the da'es on which the journal has been repacked and oiled should be stenciled on the journal box. association reaffirmed its recommendation to the American Railway Association that the uniform steam hose coupling with maximum sized port opening be adopted as standard. It also recommended that all defects except those resulting from wrecks, derailments or side swiping, be considered owner's defects and an adjustment bureau be appointed. In another conclusion, the association recommended to the A. R. A. that its members be required to adopt a rule that trains will not be handled with an excess of five pounds leakage in air brake pipe lines, the question of the setting aside of this rule being left to the judgment of local officers only when the movement of the car is in a local move or confined to their own line or division.

Referring to car door fastenings, the association accepted the report of the committee recommending "that all cars should be provided with side and small end doors equipped with bottom track and rollers to prevent the sides of the cars being damaged by bars and to secure the doors so that cars cannot be entered without breaking the seal." The association recommended a modern car door fastener that will fasten the door closed or slightly opened and that when unhasped will serve as a lever to start the door open so as to do away with the use of hatchets and claw bars and other mutilating tools.

Many Other Papers and Reports Presented

B. H. Mann, signal engineer, M. P., St. Louis, Mo., presented a paper on means of accelerating freight train movements which outlined a method of analyzing train delays preliminary to the adoption of means to expedite the movement of traffic. Co-operation between the car service department and the superintendent was the subject of a paper by Charles Burlingame, superintendent of the Terminal Railroad Association of St. Louis. W. C. Morse,

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m b st n vice-president and general manager of the Louisiana Railway & Navigation Company, prepared a paper on the economical loading of trains. Owing to lack of space these papers will be abstracted in later issues.

Brief Reports on Many Subjects

During the seven years since the last convention was held a large number of subjects have been assigned to committees for investigation. Because of their number and the fact that several of the subjects have since become obsolete, reports on these assignments were presented largely by title. The following are brief abstracts of the more important ones:

In a report on the reduction of tonnage rating for locomotives to reconcile with engine condition, it was emphasized that while it was important that all locomotives should leave the roundhouse in a condition to render full service, locomotives will nevertheless continue to leave the roundhouse without developing their full rated efficiency due to wear of the cylinders and of valve packing rings, scored cylinders or valve chambers and similar defects. The committee deprecated the practice of starting a locomotive from a terminal with more tonnage than it can handle properly because of the serious interference which such trains create for others and advocated that the superintendent should have the right to regulate the tonnage to the ability of the engine to take it over the road in the most economical manner.

In an article on the conservation of fuel, W. F. Eckert, superintendent, P. & R., Philadelphia, Pa., emphasized the necessity of operating officers working with the engine crews as over 90 per cent of the railroad fuel is charged to the cost of transportation. The opportunities for the trainmaster and train dispatcher to arrange for the full loading of trains and avoid light movement of locomotives, the co-operation of the yardmaster in avoiding terminal delays and the assistance of the train as well as the engine crews were discussed. It was pointed out that there is scarcely a man on the railroad who cannot assist in saving fuel in some manner, as for instance the car man in charge of journals and lubrication, whose proper attention to his work will have an immediate effect on fuel consumption.

Interesting Employees in Claim Prevention

A means of interesting employees in a claim prevention campaign was outlined by D. S. Farley, assistant general manager, A. T. & S. F. Mr. Farley suggested that the agent be encouraged to hold meetings with the employees at his station to show them the extent of the losses incurred and means of preventing them. He also suggested that superintendents meet with their yardmaster, agents and train service employees at intervals and that system meetings be held semi-annually with representatives from each branch of the service. These meetings will be educational in character and offer opportunity for the discussion of methods of handling freight in a way that will prevent claims.

The interchange of cars at large terminals was the subject of a paper by G. O. Brophy, assistant to general solicitor, U. P., Omaha, Neb. In his paper Mr. Brophy stated that the average time required for interchange through most large yards is about 20 hours and that this should be reduced to 15 or 16 hours. He advocated a reciprocal agreement on interchange whereby the lines alternate in receiving and delivering cars for given periods. He concluded with the suggestion that a committee of the general yardmasters and superintendents of terminals be organized at each large interchange point to give this subject careful consideration in an effort to develop the shortest routes and the most economical practices.

In a paper on rail maintenance and conservation, F. W. Curtis, division superintendent, M. St. P. & S. S. M., Minneapolis, Minn., emphasized the necessity of frequent and

careful inspection of rail in track to insure its proper maintenance and to detect failures. He also discussed the improvement of the riding quality of rail by sawing off battered ends by building them up with oxy-acetylene welding and discussed the precautions to be taken with various types of failures.

A report was presented on the reclamation of grain doors and the coopering of cars in which the various practices of collecting grain doors and returning them for future use were described. The committee presented in detail the rules which are in effect in one city where this work is done by contract. It advocated the creation of a bureau to handle this work at important points and discussed the relative merits of operating such a bureau under railway and independent supervision.

Papers were presented on the elimination of overs and shorts by W. S. Williams, general superintendent, I. C. Waterloo, Iowa; J. L. East, superintendent freight service, I. C., Chicago, and C. H. Baltzell, superintendent, St. L.-S. F., Ft. Smith, Ark. These papers emphasized the necessity of proper supervision and the installation of accurate methods to reduce this source of loss to the minimum.

Other Papers and Reports

Other papers and reports which were read by title included the electrical operation of the mountain divisions of the Chicago, Milwaukee & St. Paul, by J. H. Rosenstock, superintendent of transportation of the General Electric Company; the distribution of freight car equipment; the sacking of grain, by D. S. Farley, assistant general manager, A. T. & S. F., Topeka, Kan.; tonnage rating, by J. W. Marshall, trainmaster, I. G. N.; railroad and highway grade crossing protection, by J. W. Smith, general manager, I. H. B., Gibson, Ind.; handling live stock, by O. F. Clark, car accountant, G. T., Chicago; a series of discussions on the development of a more cordial feeling between the public and the railroads, by W. H. Waits, superintendent terminals, Sou., Atlanta, Ga.; W. C. Bevington, division superintendent, M. P., Nevada, Mo., and G. E. Carr, trainmaster, A. A., Owosso, Mich., and a series of papers on yard operation by G. E. Carr, trainmaster, A. A., Owosso, Mich., and J. V. Campbell, transportation department, M. P., St. Louis, Mo.



A. H. Smith, President of the N. Y. C., Chauncey M. Depew, Chairman of the Board, and Mayor John F. Hylan of New York, at Celebration of Twentieth Century Limited's 21st Birthday, Grand Central Terminal, New York.

General News Department

The shopmen of the Canadian railways have submitted to the Railway Association of Canada a request for an increase of 10 cents an hour in their wages, asking also for changes in working conditions.

Engineering and construction work on the government's railroad in Alaska having been completed, the President has issued a proclamation authorizing the secretary of the interior to operate the road.

The Pere Marquette will, on July 1, resume the operation of its line between Lawton, Mich., and South Haven, which was leased on April 16, 1907, by the Kalamazoo, Lake Shore & Chicago, and which has since been operated as part of this line.

The threatened strike of shopmen on the Denver & Rio Grande Western, has been averted by Governor Sweet, of Colorado, who proposed that the charges of unfair practices be taken before the District Court at Denver, for settlement. The shopmen agreed to await the decision of the court, which has authority over the road through the receiver.

Atlantic Coast Line Locomotive No. 432, Pacific type, hauled a train of nine cars, carrying members of Egypt Temple Shrine from Tampa, Fla., to Richmond, Va., early in June, a distance of 883 miles, without being detached from the train. The party was en route to the Shriners' conclave at Washington, D. C. Fires' were cleaned at intervals of approximately 100 miles.

At the annual meeting of the Freight Station section of the American Railway Association at St. Paul, Minn., on June 19, 20 and 21. The election of officers for the ensuing year resulted in the choice of J. R. Hitchcock, agent of the Atchison, Topeka & Santa Fe, Kansas City, Mo., as chairman; E. J. Coffey, agent of the Southern, East St. Louis, Ill., as first vice-chairman, and C. T. Spear, agent for the Chicago, Milwaukee & St. Paul, at St. Paul, Minn., as second vice-chairman.

Wage Increases

The Delaware, Lackawanna & Western has increased the wages of shopmen, beginning on July 1, two cents an hour. First class mechanics heretofore receiving 80 cents an hour will now receive 82. The Louisville & Nashville has made a similar increase.

The Chicago & North Western and the Chicago & Eastern Illinois have increased the pay of shopmen, all classes, two cents an hour.

Court Sustains N. Y. C. Control of Chicago Junction

In the Federal Court at Chicago, on June 27, the suit of rival railroads to enjoin the New York Central from controlling or operating the Chicago River & Indiana, which operates the Chicago Junction railroad, was dismissed. The court held that plaintiffs had produced no evidence of injury to their interests and that the Interstate Commerce Commission acted lawfully in authorizing the lease of the local roads to the New York Central.

A Signal Section of the Interstate

Commerce Commission

The Interstate Commerce Commission has established a section of signals and train control devices, with W. H. Harland as chief, reporting to Commissioner Esch, to handle matters arising in connection with the commission's order requiring 49 roads to instal automatic train control devices. These matters have

heretofore been dealt with by the Bureau of Safety, which will continue to co-operate with the new section. Mr. Harland has been with the commission for several years, formerly in the Bureau of Valuation and recently as senior signal and electrical engineer in the Bureau of Safety.

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Restricted Service at Broad Street Station

The Pennsylvania announces that the traveler which is to be set up in the Broad street station, to be used as a staging for taking down the arches of the damaged roof, cannot be ready for use for some time yet, and that the work of taking down the framework will probably take 30 days. Including the time required to remove the traveler, several weeks must elapse; therefore, it will be nearly the end of August before more than 10 tracks can be used in this shed for passenger train service; and several weeks beyond that will be required for the work of taking away the apparatus which will occupy several tracks. At present, about two-thirds of the former normal train service is conducted at this station, so that a good many through passengers must continue to take their trains from West Philadelphia.

Fuel Association Conducts Prize Paper Contest

A prize contest for the best paper on railway fuel conservation, open to enginemen, firemen, conductors, brakemen or switchmen, has been announced by the International Railway Fuel Association. A prize of \$100, offered through the association by Eugene McAuliffe, special representative, Union Pacific System, will be awarded to the writer of the best paper submitted, the judges to be M. A. Daly, president of the association; L. G. Plant, mechanical department editor, Railway Review, and C. B. Peck, western mechanical editor, Railway Age. The contest closes on August 31, at which time all papers must be in the hands of J. B. Hutchison, secretary of the Fuel Association, at 6000 South Michigan avenue, Chicago. A few railroads have already signified their intention of supplementing the prize offered by the association, with a prize for the best paper submitted by any of their men. Details as to the length and form of the papers will be published next week.

A Correction

In some copies of the Railway Age of June 16, 1923, two typographical errors appeared on page 1424 in the article entitled, "Transverse Forces in Truck Side Frames on Curves," by G. A. Anderson. The fifth and sixth equations in the first column should read as follows:

$$Ra = 2 Sb + Kc$$
or
$$R = \frac{2 Sb + Kc}{a}$$

The first equation in the second column on page 1424 should read:

$$M_b = R\left(\frac{a}{2} - d\right)$$

The re-statement of this equation which appeared below is correct,

Protection for Highway Crossings

White stripes painted across the road are to be used in New York State as a sign to notify automobile drivers of the approach to railroad crossings. This is the announcement of the State Commissioner of Highways, at Albany, in connection with a statement, recently published, showing the number of miles of

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state highways completed during the present season. The stripes evidently are to be used on the hard pavements of which the new state highways are made. Approaching the tracks the automobilist will first be confronted by two parallel stripes, 12 in. wide, 5 ft. apart, extending across the whole width of the These will be 230 ft. from the nearest track, a third stripe will be painted 125 ft. from the nearest track, and a final one, 2 ft. wide, 25 ft. from the track, will consist of diagonal bars, alternately black and white. The New York State Highway Department has completed about 89 miles of highways this season, and the state and the contractors together have over 11,000 men employed in the work.

Painting by Vandals

If John I. Blair could come back to life he wouldn't be at all pleased by the disrespect shown the private railroad between Delaware Station and Blairstown, which he built many years ago in order to connect his home with the Lackawanna Railroad system. But then if Mr. Blair were still living he wouldn't permit the railroad to become the joke that it is today. He would keep the cars painted and the rolling stock in better shape.

This is the view some Blairstown citizens take of the matter and possibly excuses to a degree the act of vandalism perpetrated last Friday night at the expense of the Susquehanna road, which now operate the one-train line to the extent of two trains a day.

When the faithful train crew came around for the morning run last Saturday morning they didn't know their own train. two cars had been in the hands of painters over night, the sides of the coaches having been painted a bright red. The paint was put on to stay and is still there. It is thought to be the act of mischievous young men of Blairstown. Anyway, everybody sees the point, and the hope is that the railroad company will take the hint, give patrons better cars and provide an improved service. Special inscriptions were painted along the sides of the coaches. d: "Blairstown Special." Another was: "Stop, Look and Still another read: "Watch Your Step." One read:

The railroad runs through a dairy section and farmers are having trouble controlling their bulls every time the bright red The cattle are not yet accustomed to the coaches go through. new color. Railroad detectives have been around Blairstown for several days trying to locate the persons who wielded the paint brushes .- Blair (Pa.) Breeze.

The Railroads' Use of Advertising Columns

The number of railroads that are using advertising space in daily papers and magazines as a means of disseminating information is increasing. The Great Northern has just issued the fourth of a series of such statements, entitled "Great Northern Valuation Shows no 'Water.'" The Great Northern on June 30, 1915, owned property totaling \$391,740,302 and used property totaling \$395,353,655. In arriving at these figures the commission omitted the investment in stocks and bonds of other companies, including lines located in Canada aggregating \$227,076,313 and other miscellaneous property used for non-carrier purposes totaling \$24,315,418, which, if added to the value set by the commission would make a total of \$643,132,033. It is also stated that since the valuation date of June 30, 1915, there has been added to the property \$82,259,790, which will bring the total value of Great Northern property on January 1, 1923, up to \$725,319.823. compared with a capitalization on January 1, 1923, of \$540,978,319, shows an excess of property over securities of \$184,413,504.

An advertisement of the Kansas City Southern entitled "Kansas City Southern Helps Develop the Territory it Serves," emphasizes the fact that a railroad is more than a carrier of passengers and freight as it brings new people to a section, increases employment, stimulates business, encourages land improvement and contributes through taxation to the betterment and maintenance of civil institutions. Taking the territory adjacent to this railroad extending five miles on either side of the line, excluding Kansas City, it appears that from January, 1916, to January, 1922, investments increased by the aggregate sum of \$1,144,840,570. A comparison is also made of the population of five counties scattered along the line of the road and practically served only by it, and the population of five counties in the neighborhood of the road without railroad facilities which show that between 1900 and 1920 the population of the Kansas City Southern counties increased

64.64 per cent, while that of the non-railroad counties decreased 5.11 per cent. It is also stated that the value of farm property of the Kansas City Southern counties increased 335.76 per cent while that of non-railroad counties increased 223.75 per cent.

In a Chicago & North Western advertisement entitled "Freight Rates and Valuation," the statement of railroad agitators that the value of all railroads in the United States does not exceed \$12,000,000,000 and that under such valuation freight rates might have been materially reduced, is contested on the ground that the statement disregards the railroads' right under the federal and state constitutions to a fair return on the value of their property. The statement denies the validity of the valuation made by the Interstate Commerce Commission. It also disregards the fact that the railroads during the 34 months prior to January 1, 1923, did not earn four per cent on twelve billions, although authorized

to earn six per cent on nearly 19 billions.

The Illinois Central calls attention to the Valuation Act of 1913 under which the government and the railroads together have already expended about \$88,000,000 in making a record of values. The Illinois Central is cited as an example of the valuation and capitalization of railway properties that are confused in public discussions. On December 31, 1922, the aggregate par value of securities of this road outstanding was \$406,868,141 and the value of 75,000 freight cars, 1,850 locomotives and 1,700 passenger cars was \$156,000,000, which, when subtracted from the capitalization left \$250,868,141 as the value of the road, bridges, signals, telegraph lines and other railway properties. It is shown that if the \$250,868,141 covered the value of track alone, excluding all other properties used in the service of the public, it would represent about \$25,087 for each mile of track compared with \$25,000 a mile required to build ordinary hard-surface highways with only light grading and bridge construction and without including the cost of acquiring the land.

In advertisements of the Atchison, Topeka & Santa Fe headed "The Santa Fe and the Car Supply for 1923," it is stated that the ability to furnish cars in 1923 depends not only on the efforts of this road but on the ability of all the roads in the United States to function properly. The success of the railroads is shown in the fact that since January 1, nearly 10 per cent more cars of commercial freight have been handled than in the corresponding months of 1920, which was the record year, and car shortage has been reduced by one-half through the combined efforts of shippers and carriers. The advertisement also outlines the program of the Santa Fe to meet the car demand in 1923 and asks shippers to load and unload promptly, and avoid all waste.

The Philadelphia Terminal Problem

Schemes for a new passenger station in Philadelphia, which have been rehearsed in great variety in the newspapers since the destruction of the Broad street terminal train shed on June 11, have been made the subject of a letter from President Samuel Rea to the secretary of the Philadelphia Board of Trade, replying to inquiries from the Board of Trade and from other sources. Rea considers the whole subject of railroad terminals and the accompanying street changes. These have been under discussion by the directors of the Fennsylvania Railroad for years and the letter gives some of the reasons for non-action in some directions in which the public have thought that the company ought to make extensive improvements. Some proposals deemed important by certain interests are strongly opposed by other interests. The railroad company has bought large tracts of real estate on the north side of its line leading to Broad street, but it is not certain that the public would be pleased with the en-largement of the station in that direction. The directors of the road have felt for some time that there must be a new and enlarged station at West Philadelphia, and studies of the problem have been made; but in this problem are involved costly changes in streets, and in bridges across the Schuykill river, which would have to be settled in co-operation with the city. plan might be agreed upon, immediate execution would be out of the question because construction costs are "out of all reason" and also because the railroad company has no assurance of what it may be allowed to earn in the coming years. But the situation is now improving, and the road has made every effort, despite low earnings, to keep pace with the rapid growth of the country; but to embark on a costly improvement which may not directly bring a return on the investment involves many questions not yet

Operating Statistics of Large Steam Roads-Selected Items for the Month of April, 1923,

operating comments			Locomotiv	re-miles	Car-m	niles	Ton-miles (of		ge numbe ves on line	
Region, road and year New England Region: Boston & Albany	Average miles of road operated 394 2,455 2,455 1,974 1,977	Train- miles 342,443 210,167 667,224 494,538 506,045 406,723	Principal and helper 369,099 226,511 748,557 547,999 546,829 443,817	Light 39,604 26,187 70,545 46,124 39,252 29,493	Loaded (thou- sands) 6,748 4,370 14,438 10.908 12,456 10,561	Per cent loaded 68.4 68.9 70.8 71.4 71.7 71.0	Gross. Excluding locomotive and tender 363,072 205,900 755,774 535,098 641,460 499,942	Net. Revenue and non- revenue 155,905 72,031 321,998 210,115 282,867 196,864	Service able 123 114 337 318 293 275	Un- serv- iceable 26 30 132 133 117 83	Per cent unserv- iceable 17.4 20.9 28.2 29.5 28.5 23.1	
Delaware & Hudson	2,309 1,317 1,316 1,827 1,827 6,469 6,468 1,225 1,225 2,182 2,191 231 228 2,418	386,426 270,832 525,106 396,452 1,078,978 740,282 594,790 463,180 636,705 487,663 2,601,515 1,617,665 532,816 412,699 423,040 324,709 203,519 84,722 617,320 537,006	556,736 361,460 649,762 477,931 1,234,684 808,509 656,674 504,936 653,214 43,009,068 1,775,283 541,007 416,295 452,972 211,864 89,089 656,398 564,513	46,543 30,228 109,417 91,725 62,798 43,497 78,099 65,876 24,533 17,462 220,155 98,217 4,952 1,172 9,668 6,043 980 5,54 7,108 4,818	10,404 7,039 16,773 12,773 37,787 12,999 22,187 15,531 91,776 56,669 16,289 11,843 11,843 8,756 2,230 19,212	66.7 63.3 73.2 70.3 63.6 71.4 71.0 64.8 65.0 71.5 68.8 74.3 69.8	679,488 426,629 924,458 609,884 1,359,832 1,019,092 702,949 1,141,485 796,465 5,621,458 2,981,706 847,916 632,968 625,470 464,201 514,114 148,094 979,888 762,229	376,898 195,481 433,236 246,998 1,052,030 545,654 506,798 296,823 484,432 294,074 2,560,773 1,142,609 366,496 249,190 318,423 207,432 292,967 77,090 425,392 301,750	244 283 287 304 621 539 317 433 316 316 1,314 1,57 178 163 67 69 243 259	59 36 60 168 226 227 123 82 90 445 586 64 67 45 51 17	19.5 11.4 21.0 16.4 21.3 29.5 41.7 22.1 20.7 22.1 25.3 34.3 28.8 27.4 21.5 23.8 20.5 14.1 24.4 21.8	13 182 3 74 46 119 2 176 7 82 106 379 3 49 11
Baltimore & Ohio	5,235 692 945 945 2,377 2,387 460 459 393 394 10,882 1,118	2,187,273 1,566,257 310,816 209,767 243,970 174,689 696,349 568,540 156,128 86,000 48,522 43,662 5,048,731 3,622,453 712,669 452,064	2,516,208 1,801,643 338,525 234,926 248,584 174,900 739,413 602,121 177,211 95,813 59,437 47,810 5,609,604 3,877,105 798,551 495,970	155,479 137,506 37,028 32,771 4,854 2,147 6,251 4,528 12,704 6,191 10,224 8,735 457,586 263,490 87,451 54,003	59,001 39,933 7,500 4,705 6,471 4,005 23,017 16,659 4,995 2,655 510 139,979 97,007 18,534 10,702	67.0 64.1 63.7 65.2 65.3 65.5 66.4 61.8 68.2 57.7 57.8 65.9 66.0 66.7	3,607,078 2,384,772 481,509 263,306 383,963 212,806 1,377,315 980,444 369,368 182,789 37,876 29,533 9,203,562 5,868,709 1,227,063 668,039	1,817,884 1,124,598 241,337 118,286 189,496 93,650 684,222 201,551 98,483 14,815 10,934 4,651,943 2,689,140 665,545 320,069	1,043 905 198 223 115 125 317 86 91 41 38 2,579 2,562 347 382	261 453 72 38 54 39 113 139 14 18 9 7 750 873 82 77	20.0 33.4 26.7 14.4 32.2 23.9 26.6 30.5 13.5 16.3 18.2 16.0 22.5 25.4 19.0	33 181 49 7 50 6 36 23 796 52 223
Cherapeake & Ohio. 1923 Norfolk & Western 1923 1922	2,548 2,228	828,570 667,442 850,363 860,420	911,793 723,089 1,105,757 1,037,492	21,214 16,813 45,426 43,657	26,223 20,280 24,106 25,266	61.8 56.4 62.7 57.8	1,913,214 1,549,693 1,792,906 1,984,993	1,055,722 821,095 966,673 1,095,766	420 437 528 606	94 108 172 96	18.3 19.8 24.6 13.6	76 36 174
Southern Region: Atlantic Coast Line	8 4,860 2 4,923 3 1,907 8 1,899 6,190 2 6,137 5,024 2 5,021 3,550 2 3,537 6 6,942	842,145 728,460 311,250 210,067 2,048,372 1,368,876 1,527,556 547,627 467,22 1,627,230 1,277,663	846,771 740,484 315,636 212,614 2,064,111 1,379,283 1,803,170 1,660,590 556,394 472,795 1,678,992 1,301,215	13,474 11,738 4,770 4,040 45,422 33,595 63,785 62,243 8,928 8,552 39,851 31,146	20,188 17,511 6,420 4,780 56,182 37,197 30,799 27,302 12,062 10,572 35,655 28,217	64.3 59.4 77.5 75.3 65.6 63.9 60.2 65.6 65.7 67.5 67.6	1,050,474 927,213 336,560 232,198 3,429,926 2,130,533 1,952,420 1,761,541 653,260 556,001 1,940,700 1,447,115	409,997 328,019 166,819 103,289 1,568,103 870,113 946,947 823,430 257,862 211,095 851,255 585,436	327 311 114 112 747 752 594 583 200 192 882 865	89 102 17 25 104 82 119 94 57 71 168 185	21.3 24.7 13.1 18.0 12.2 9.8 16.7 13.9 22.2 27.1 16.0 17.6	14 77 3 130 111
Northwestern Region: Chic. & N. Wn	8,376 11,007 2 11,027 3 1,726 2 1,726 2 1,726 2 1,726 3 4,363 4,363 4,363 4,355 6,422 2 6,414 3 2,186	1,642,277 1,215,788 1,873,438 1,331,642 327,014 272,124 869,278 657,578 556,900 415,482 804,213 640,242 200,786 173,888	1,704,298 1,250,128 1,936,889 1,370,005 348,125 290,121 905,008 682,844 567,261 449,954 840,096 668,336 221,519 195,514	28,591 18,185 72,499 58,394 14,658 10,692 27,880 10,687 6,230 50,904 42,858 27,320 29,090	36,707 29,986 46,289 33,065 6,434 5,252 24,930 18,601 13,270 9,522 24,302 19,157 4,955 4,341	65.7 68.2 61.7 63.6 68.1 73.3 68.1 69.1 74.2 72.8 71.1 70.7 70.8 73.4	2,028,864 1,305,565 2,711,949 1,800,029 340,105 257,883 1,403,980 1,009,495 675,921 462,877 1,324,351 1,002,140 271,491 233,908	849,614 548,273 1,204,132 744,814 146,657 106,993 657,055 468,803 324,636 209,175 619,278 451,866 124,019	865 803 847 823 155 151 532 615 276 297 532 552 5129 115	228 237 203 226 53 57 233 147 69 54 192 158 49	20.9 22.7 19.3 21.5 25.4 27.4 30.4 19.3 19.3 26.5 22.2 27.3 26.3	799 15 96 37 26 168 30 29
Central Western Region: Atch., Top. & S. Fe	2 9,798 3 1,010 3 9,326 2 9,326 2 9,326 3 2,593 2 2,593 3 2,593 2 2,360 3 6,923 3 6,923 3 3,709	1,751,184 1,369,973 321,181 245,247 1,725,116 1,241,331 1,425,503 1,132,535 223,2535 223,3291 188,733 343,483 262,070 1,193,609 916,415 638,527	1,831,836 1,433,530 247,758 1,800,606 1,293,286 1,459,666 1,145,177 283,385 232,991 361,087 274,732 1,369,566 1,050,864 981,219 648,408	87,010 64,081 5,402 3,983 87,354 63,229 18,153 10,094 45,096 24,309 21,333 240,751 176,477 57,216	46,736 36,591 7,678 5,095 48,170 32,241 30,860 24,820 4,199 7,984 6,352 35,941 27,064 30,513 21,588	65.3 65.8 65.6 62.7 64.9 67.6 67.2 66.6 67.2.4 69.5 63.0 66.6 68.0 66.6	2,676,261 2,011.607 454,802 286,249 2,873,597 1,732,589 1,692,637 1,298,656 281,664 235,766 486,128 369,607 2,020,698 1,529,358 1,621,819 1,028,154	1,004,222 734,591- 204,726 114,152 1.355,629 723,589 510,741 139,637 112,114 210,527 166,336 832,035 621,568 636,769 426,611	712 788 119 107 767 713 494 611 229 154 169 606 545 429 396	207 158 34 555 209 243 194 144 112 79 84 59 178 209 108	22.5 16.7 21.9 33.7 21.4 25.4 28.2 19.1 32.7 25.7 35.4 22.7 27.7 20.1 25.4	55 21d 11 13 90 11 38 22 44 42 44 45
Southwestern Region: Gulf, Colo. & S. Fe	2 1,895 3 1,871 1,987 3 1,389 2 1,738 3 7,112 2 7,315 3 4,683 3 3,680 2 4,683 3 3,710 3 1,953 2 1,953	229,985 187,265 270,924 227,447 163,734 185,765 1,062,464 931,888 933,175 755,579 612,315 544,224 258,680 208,525	236,566 195,799 271,504 227,570 169,306 190,795 1,072,818 941,757 951,085 765,155 614,755 545,650 258,698 208,525	4,845 4,064 9,133 5,497 2,852 3,737 42,544 28,295 11,324 6,361 4,827 4,960 1,416	5,663 4,784 7,761 5,949 3,516 3,582 22,653 17,326 13,995 13,765 11,292 5,962 4,906	70.8 69.6 65.2 64.3 66.8 65.6 66.1	322,824 267,286 438,977 334,130 203,645 200,219 1,514,636 1,215,218 991,283 789,584 782,792 662,062 332,294 267,866	140,835 115,358 179,004 127,935 81,424 78,275 701,641 526,206 431,181 329,007 342,003 292,922 133,655 102,145	114 129 108 151 66 85 403 412 374 346 195 192 118 122	29 30 77 42 61 54 229 172 125 99 97 92 85 73	41.7 21.9 48.1 39.0 36.2 29.4 25.1 22.3 33.1	36

**West Texas, Iberia & Vermilien, Lake Charles & Northern, Louisiana Western, Morgan's La. & Tex. R. R. & S. S. Co., and Texas & New Orleans.

23,

Compared with April, 1922, for Roads with Annual Operating Revenues above \$25,000,000.

Compared with April,		Ave	rage numb	er			Ope	latini	g IV			Pounds	of	00,000.
	0	f freight	cars on li			Gross	37-4	Net	Net			1,000 gro	ss Passer	nger service
Pagina and and area				er cent		per train, excluding ocomotive	Net	tons per loaded	ton- miles	Car- miles	mile	ton-mile	g	Passenger-
Region, road and year New England Region:		Foreign	Total	able		nd tender		car	per car-day 470	per car-day 29.7	per day		ler miles	car-miles
Boston & Albany1923 1922 Boston & Maine1923	1,451 3,566 11,827	9,600 4,503 29,252	11,051 8,069 41,079	2.8 6.9 9.2	915	1,060 980 1,133	455 343 483	23.1 16.5 22.3	298 261	26.2 16.6	13,192 6,095 4,372	202 207 179	294,986 290,834 779,124	1,932,292 1,887,399 4,216,067
N. Y., New H. & Hartf. 1923	16,908 16,417	13,146 36,433	30,054 52,850	18.8 13.5	1,775	1,082	425 559	19.3	233 178	16.9 11.0	2,853 4,776	159 195	775,980 970,782	4,240,230 6,217,481
Great Lakes Region:	24,749	14,835	39,584	24.9	1,730	1,229	484	18.6	166	12.5	3,320	168	959,709	6,031,522
Delaware & Hudson1923	7,934 11,383 11,542	10,503 6,282	18.437 17,665	7.6 7.5 3.9	4,059	1,758 1,575 1,761	975 722 825	36.2 27.8 25.8	681 369 563	28.2 21.0 31.0	14,174 7,347 14,542	219 201 207	183,314 184,313 472,539	965,851 948,612 3,362,290
Del., Lack. & Western. 1923 1922 Erie (inc. Chic. & Erie) 1923	18,439 21,099	14,108 6,167 36,879	25,650 24,606 57,978	10.4 8.7	936	1,538	623 975	19.3 27.8	335 605	23.7	8,283 15,185	182 147	476,022 599,309	3,404,712 4,351,524
1922 Lehigh Valley1923	39,225 18,678	15,861 18,627	55,086 37,305	18.1 5.2	9,731	1,810 1,713	737 852	22.7 28.6	330 453	22.8	7,876	151 189	652,557 335,849	4,671,699 2,636,805
Michigan Central1922	32,581 7,959	7,871 25,212	33,171	11.2 6.6	11,106	1,518 1,793	641 761	22.8	245 487	16.1 31.4	7,516 8,840	183 129	339,072 557,528	2,641,504 4,922,334
New York Central1922		11,422 110,838	29,876 165,702	18.3 9.2	239	1,633 2,161	603 984	18.9 27.9	328 515	26.7	5,367	127 130	529,304 2,455,118	4,713,869 19,251,388
New York, Chic. & St. L. 1923	93,860 2,857	44,316 14,386	138,176	18.5 7.9	16,765	1,843	706 688 604	20.2 22.5 19.4	276 708 550	21.0 44.1 41.1	5,889 9,969	129 141 119	2,378,193 144,578 132,761	18,610,813 753,805
Pere Marquette1923	6,995 5,544 11,135	8,115 22,232 10,610	15,110 27,776 21,745	14.7 3.9 13.2	1,956	1,534 1,479 1,430	753 639	26.9 24.9	382 318	19.1	6,778 4,865 3,156	145	249,345 234,520	691,929 1,207,395 1,201,569
Pitts. & Lake Erie1923	7,983 20,094	13,808	21,791 28,275	17.9 38.2	1,236	2,526 1,748	1,440 910	43.4	448 91	17.3	42,237	89	112,108 106,971	582,780 544,606
Wabash	7,301 13,128	14,358 9,282	21,659 22,410	2.7	808	1,587 1,419	689 562	22.1 20.2	655 449	39.1 31.9	5,865 4,160	156	421,718 540,215	2,415,132 2,864,717
Ohio-Indiana-Allegheny Region: Baltimere & Ohio1923	46,551	52,962	99,513	8.1		1,649	831	30.8	609	29.5	11,626		1,451,156	9,132,170
Central R. R. of N. J 1923	71,022	33,128 17,563	104,150 29,532	7.6	11,966	1,523	718	28.2 32.2	360 272	19.9	7,161	188 203	1,412,175 326,804	8,893,198 1,562,420
Chicago & Eastern Ill1923	20,219 10,181 16,321	8,027 6,228 2,682	28,246 16,409 19,003	5.9 20.8 11.4	9,942 8,679	1,255 1,574 1,218	564 777 536	25.1 29.3 23.4	140 385 164	8.5 20.1 10.7	5,701 6,683 3,303	206 192 180	319,636 228,746 210,372	1,542,346 1,419,525 1,392,275
Clev., Cin., Chic. & St. L. 1923 1922	9,272 17,866	25,666 16,498	34,938 34,364	5.9	5,973	1,978 1,724	983 766	29.7 26.2	653 423	33.1 26.2	9,597	140 133	687,698 676,778	4,348,036 4,237,080
Elgin, Joliet & Eastern ¹ 1923 1922	8,310 9,595	8,273 5,543	16,583 15,138	6.4	396	2,366 2,125	1,291 1,145	40.4 37.1	405 217	14.7	14,614 7,147	142 139	*****	
Long Island1923	1,344 2,125	6,834 4,376	8,178 6,501	2.9 3.9	193	781 676	305 250	23.6 21.4	60 56	4.4	1,256 925	387	183,876 184,675	1,055,496 1,028,692
1922	211,824	145,731 73,748	299,019 285,572	6.1 12.7	541 52,224	1,823 1,620	921 742	33.2	519 314	23.7 17.2	14,257 8,238	155 150	4,928,470 4,795,152	34,025,167 31,670,290
Philadelphia & Reading1923 1922 Pecahontas Region:	14,368 23,988	24,035 12,220	38,403 36,208	4.3 5.6	3,850	1,722 1,478	934 708	35.9 29.9	578 295	24.1 15.7	19,848 9,531		488,418 472,629	2,270,975 2,183,856
Chesapeake & Ohio1923	27,453 37,591	16,755 11,577	44,208 49,168	10.3 13.6	212	2,309 2,322	1,274	40.3	796 557	32.0 24.4	13,785 10,742		443,017 424,087	2,520,707 2,350,302
Nerfolk & Western1923	25,179 31,011	13,536 8,138	38,715 39,149	5.2 5.0	862	2,108 2,307	1,230 1,137 1,274	40.1	832 933	33.1 37.2	14,464 16,396	199	385,427 379,980	2,385,281
Southern Region: Atlantic Coast Line1923	13,952	18,361	32,313	9.3		1,247	487	20.3	423	32.4	2,812	137	868,956	6,306,751
Central of Georgia1923	1,806	11,608 6,654	33,852 8,460	13.8		1,273	450 536 492	18.7 26.0 21.6	323 657	29.0 32.6 26.5	2,221	186	814,142 337,705	5,772,580 1,835,248
III. C. (inc. Y. & M. V.) 1923 1922	4,459 26,845 46,428	3,515 40,535 18,747	7,974 67,380 65,175	15.8 6.5 9.2	138 11,600	1,105 1,674 1,556	766 636	27.9 23.4	432 776 445	42.2 29.0	1,813 8,444 4,726	153	307.658 1,537,226 1,505,586	1,608,411 10,025,553 10,141,609
Louisville & Nashville1923	23,953 36,524	25,273 14,958	49,226 51,482	12.1 11.1	53 85	1,158 1,153	562 539	30.7	641 533	32.6 29.4	6,283 5,466	177	996,724 1,015,157	5,967,555 5,918,129
Seaboard Air Line1923	9,351 13,159	13,258 11,600	22,609 24,759	21.3 31.9	****	1,193 1,198	471 455	21.4	380 284	27.1	2,421 1,989	165 168	619,419 590,749	3,793,802 3,537,439
Southern Ry1923 1922	25,447 37,901	38,845 21,893	64,292 59,794	8.7 17.6		1,193 1,133	523 458	23.9	441 326	27.4 23.3	4,087 2,811		1,303,778 1,252,850	7,818,684 7,207,874
Northwestern Region: Chic. & N. Wn1923	34,334	44,515	78,849	6.6	4.700	1,235	517	23.1	359	23.6	3,347		1,506,750	9,197,981
Chic., Milw. & St. P1923	46,828 36,861 51,130	22,963 44,085 22,571	69,791 80,946 73,701	7.5 8.2 15.3	4,700	1,074 1,448 1,352	451 643 559	21.1 26.0 22.5	262 496 337	18.2 30.9 23.5	2,182 3,646 2,252	164	1,525,182 1,419,838 1,401,289	9,316,379 8,581,478 8,443,590
Chie., St. P., M. & O1923	2,683 3,799	10,086	12,769 14,258	9.7 11.0	34 1,906	1,040	448 393	22.8	383 250	24.7 16.8	2,832 2,066	188	284,479 301,368	1,657,881
Great Northern1923 1922	36,282 45,186	12,850 5,196	49,132 50,382	8.5 14.7		1,615 1,535	756 713	26.4 25.2	446 310	24.8 17.8	2,653 1,890	165 164	947,351 953,022	5,531,448 5,541,979
M., St. P. & S. Ste. M1923 1922	13,976 18,840	10,601 5,569	24,577 24,409	12.7 12.8	228 2,353	1,214 1,114	583 503	24.5 22.0	440 286	24.3 17.9	2,480 1,601	130	420,747 416,984	2,252,727 2,256,149
Northern Facific	24,832 35,900	10,778 6,933	35,610 42,833	11.6	1,302	1,647	770 706	25.5 23.6 25.0	580 352	32.0 21.1 24.3	3,214 2,348 1,891	136	787,773 826,083	4,995,589 5,195,817
Central Western Region:	5,719 6,631	3,891 2,549	9,610 9,180	5.1 3.0	3,256	1,352 1,345	618 635	25.4	430	21.5	1,698		247,881 245,981	1,572,386 1,594,173
Atch., Top. & S. Fe1923 1922	40,588 49,496	21,743 11,807	62,331 61,303	7.5 7.7	5,868 14,291	1,528 1,468	573 536	21.5 20.1	537 399	38.3	3,391	150	1,726,807	
Chicago & Alton1923	5,992 9,893	7,289 3,792	13,281 13,685	7.6 3.4	2,500	1,416 1,167	637 465	26.7 22.4	514 278	29.4 19.5	6,755	193	280,427 263,655	1,688,293 1,553,778
Chic., Burl. & Quincy1923	36.539 48,331	32,103 17,687	68,642 66,018	8.9 8.2	7,776	1,666 1,396	786 612	28.1	€58 384	36.1 24.1	4,845 2,715	170	1,438,396 1,400,834	8,918,499
Chic., Rock I. & Pacific. 1923	21,955 34,007	22,045	44,000 47,085	9.0	185 7,442 1.085	1,187	508 451 625	23.4 20.6 28.0	548 362 326	34.8 26.4 16.0	3.159 2,222 1,795	172	1,241,604	7,053,298 7,044,537
Denver & R. G. Wn1923 1922 Oreg. Short Line1923	11,006 13,489 5,111	3,292 2,676 4,627	14,298 16,165 9,738	8.4 11.3 7.0	2,762	1,261 1,249 1,415	594 613	26.7 26.4	231 721	12.5	1.441	211	220,532 222,257 268,617	1,529,346 1,576,810 1,908,671
1922 Southern Pacific	6,475 18,162	3,539 23,521	10,014 41,683	7.2 4.7	148 694	1,410 1,693	635 697	26.2 23.2	554 665	31.2 42.1	2,350 4,006	142	278,263 1,306,409	1,901,208
Union Pacific	23,521 12,485	17,307 10,522	40,828 23,007	6.6	3,674	1,669 1,694	678 665	23.0 20.9	507 923	33.0 64.4	2,992 5,723	2 148 3 156	1.273,069 830,824	
Southwestern Region: 1922	17,383	6,42	23,803	14.4	3,409	1,626	667	19.7	597	39.1	3,874	162	831,314	6,658,612
Gulf, Colo. & S. Fe1923 1922 Missouri-Kansas-Texas1923	5,233 7,429	4,447 3,279	9,680 10,708	5.2	372 788	1,404 1,427	612 616	24.9 24.1	485 359	29.2 22.4 25.5	2,475	146	189,535 188,810	1,066,221
MoKansTex. of Texas 1923 MoKansTex. of Texas 1923	8,669 8,956 246	7,460 6,252 8,333	16,129 15,208 8,579	8.8 6.5 15.3	4,806	1,620 1,469 1,244	661 562 497	23.1 21.5 23.2	370 280 316	25.5 21.6 21.7	3,190 2,146 1,954	148	271,199 286,162 240,205	1,917,310 1,918,258 1,529,479
Misseuri Pacific	359 20,208	10,802 30,227	11.161 50,435	7.0	2,507	1,126	421	21.9 25.8	234 464	18.2 25.4	1,501	160	263,881 953,933	1,554,811 5,383,429
St. Louis-San Francisco. 1923	33,486 14,496	17.533 19.011	51,019 33,507	8.1 8.2	2,633	1,304	565 462	23.2 24.9	344 429	21.3 26.4	2.398	3 160	901,325 714,379	5,201,036
Southern Pac. Lines (in 1923	20,991 5,865	9,143 13,535	30,134 19,400	8.2 4.9	300	1,045	435 559	23.5 24.8	364 588	24.1 35.4	2,342 3,098	2 184 3 126	722,440 531,182	4.029,359 3.538,599
Texas & Louisiana)21922 Texas & Pacific1923	8,608 3,497	7,145	20,909 10,642	14.8	1,451	1,217 1,285	538 517	25.9	467 419	27.4 28.2	2,632 2,281	146	524,229 279,777	1,794,599
Compiled by the Bureau of Stat	6,444 istics, Int	4,427 erstate (10,871 Commerce	Commi	ssion.	1.285 Subject to	490 revisio	20.8	313	23.5	1,744	146	271,991	1,743,005

Traffic News

The Missouri Pacific has issued a publication entitled "Cool—Crisp—Colorful Colorado," which describes the scenic features of that state.

The number of coal mines in operation along the line of the Chesapeake & Ohio railway is now 118 less than during the rush of business last year.

During May the Southern Pacific carried an average load of 28.6 tons per freight car, compared with 28.1 tons in April and 27.6 in March. The average mileage per freight car per day during March was 40 and in April 42.4

The New York office of the Car Service Division of the American Railway Association is making plans to keep daily records of the number of freight cars in the terminal yards of the roads centering at New York, Hoboken and Jersey City, with a view to taking prompt action when necessary to prevent congestion or delay. This office includes in its territory not only the New York Terminals but the eastern district generally.

To carry out the program of the American Railway Association to increase the efficiency of transportation by reducing the number of freight cars in need of repairs by reducing the number of locomotives needing repairs, by obtaining a freight car mileage of 30 miles a day and by loading cars to capacity, the Pennsylvania has appointed division committees which will function under the general direction of a regional committee. These will concentrate efforts to maintain all freight and passenger schedules, to handle all traffic promptly and to co-operate with the public in obtaining maximum loading of cars and prompt loading and unloading. Division committees have been formed in Illinois, Michigan, Indiana and Ohio.

Passenger Movement for Shrine Convention

The transportation committee for the Imperial Council of the Mystic Shrine held in Washington June 5 to 7 has now compiled reports from the various railroads showing that 55,000 passengers were handled into and out of Washington for that occasion on the special reduced rates made for Shriners and members of their families, in addition to the many others as to which there is no separate record because regular tickets were used. The number of special trains inbound was 198, including 153 on the steam railroads and 45 on the electric railways and the number of outbound special trains was 163, including 51 on the electric lines. In addition to the 984 Pullman cars used for the inbound movement aside from those operated on regular schedules, 1033 extra Pullman cars were used to carry the people out of Washington. This compares with approximately 6,000 Pullman cars operated daily on an average on regularly scheduled lines.

New York Central Needs Another Trunk Line

At a hearing before the Interstate Commerce Commission in New York City on June 26, the Port of New York Authority presented objections to any action looking to the control of the Central of New Jersey by the New York Central; the argument being that these two roads, each controlling large areas fronting New York Harbor, would create a monopoly of freight facilities which would be against the public interest and would interfere with the plans of the Port Authority for a comprehensive reconstruction and enlargement of freight facilities. The New York Central, responding to these arguments, declared that no interference with the Port Authority's plan would result. The spokesman of the New York Central said that the proposal to consolidate that road with the Central of New Jersey had been made with a view to the establishment of a through line from Ashtabula, Ohio, to New York by way of the New York Central lines to Newberry Junction, Pa., and thence over lines of the Reading and the Central of New Jersey to tidewater. The

increase of traffic over the present lines of the New York Central makes it necessary for that company to prepare for the establishment of a new through line; and within the next four years, "it is believed that this need will become apparent to everybody."

Arguments Before I. C. C. in Express Rate Case

Briefs were filed with the Interstate Commerce Commission this week in the case involving the application of the American Railway Express Company and the railroads for a general increase in express rates. Counsel for the express company said that the commission now has the opportunity and the data, afforded by the record in this case, for the establishment of express rates on a comprehensive basis.

The commission was requested to authorize such increases in rates in the several zones or groups as were necessary to yield from the handling of express matter that amount of additional revenue shown by the evidence in the case to be essential to meet the requirements of the service, to wit: Eastern district, \$42,003,293.60; Southern, \$5,791,823.80; Western, \$9,174,544.65. They contended that the purpose of the case was to secure compensation for the rail carriers for their handling of the express traffic on a basis entirely comparable with the method used by the commission in determining the amount the railroads should receive for the carriage of the mails and that the latter was based on a cost study.

Counsel for Class I carriers in their brief said that express service as a whole should bear charges sufficiently high to reflect the increased cost of furnishing a specialized service and should also reflect the added ability of that traffic to bear a higher charge. They said there is the same reason for adjusting express rates so that those rates on the average will yield a greater net profit than the average freight rate as there is for adjusting the freight rates on manufactured articles so that those rates will yield a higher net profit than the freight rates on low-grade commodities. They also said that as the return of the carriers from all their traffic is still short of the rate found reasonable by the commission it would seem to be clearly the duty of the commission to insure rates on express traffic which would reflect the ability of that traffic to bear higher charges.

The accounting and state commissioners' committees of express zone III said in their brief that the petition for the general increase in existing express rates is not justified on the record and should be denied; that the record justifies a reduction in express rates and charges throughout the western district in zones 3, 4 and 5 of 20 per cent; that the present rate levels in zones 3, 4 and 5 are excessive and unreasonable, unjustly discriminatory and unduly prejudicial against shippers in those zones and unduly preferential of shippers in zones 1 and 2; that for the present block and sub-block system of stating rates there should be substituted blocks exactly 50 miles square, divided into four equal sub-blocks, and that one graduated scale of rates with uniform progression for each block and lesser uniform progression for each sub-block should be prescribed and the present zone system abandoned.

Counsel for the Southern Traffic League said the league is not agitating a general reduction in rates at this time and is gratified to observe the prosperity of the railroads but that it is preposterous to assume or expect a general increase in express charges within the Southern district, the benefits of which would go almost entirely to the railroads, in the face of existing and prospective earnings. They said that rather it would appear to be in the public interest to require at least a 10 per cent reduction in existing express charges and thereby take the initial step toward a bringing down of abnormally high transportation costs. An earnest appeal was made that consideration be given to a reduction in the long-haul interterritorial express charges.

In a brief on behalf of the Boston Chamber of Commerce, New England Traffic League, the public service commission of New York and the National Industrial Traffic League counsel said that instead of an advance in rates a reduction should be ordered; that the rate structure should be examined for the purpose of correcting errors; that express service in many respects has deteriorated and should be improved; that rates in zone 4 should be reduced to the basis in effect in zones 3 and 5; that the division of the revenue between the express company and the railroads can not be used as a measure for determining the reasonableness of express rates.

Commission and Court News

Interstate Commerce Commission

Distribution of Coal Cars to Mines

All railroads which transport bituminous coal are ordered by the Interstate Commerce Commission to abolish the assigned car rule on or before September 1. This rule has been in effect since soon after termination of Federal control and the commission's opinion on its cancellation was divided, Commissioners Cox, Potter and Daniels, dissenting, Commissioner Hall dissenting in part and Commissioners Eastman and Campbell concurring in part. The opinion was written by Commissioner Aitchison, and fills 40 pages.

The commission holds that Paragraph 12, Section 1, of the Interstate Commerce Act does not in terms prohibit the practice of assigning cars for railway fuel and private cars to coal mines under the limitations fixed by the commission in Railroad Commission of Ohio v. Hocking Valley, 12 I. C. C. 398, and Traer v. Chicago & Alton, 13 I. C. C. 451.

Disposing thus of the fundamental legal question involved the commission finds that the practice of the railroads in assigning private cars, and railroad cars for railway fuel to bituminous coal mines in excess of the ratable share contemporaneously distributed to other mines upon their lines, which did not receive assigned cars, was unjust and unreasonable and unduly preferential of mines which were furnished such cars in excess of the ratable proportion.

The order requires that all cars be distributed to all mines of a district or division on a pro rata basis; and that cars shall be so placed that every mine on the same division or district shall receive the same pro rata share of the total number of available cars, whether assigned, consigned, or unassigned. The dissenting opinions are very long and detailed. The order is addressed to every railroad in the country, a list of names filling a total of 34 pages.

Nickel Plate Consolidation

with Clover Leaf Approved

Consolidation of the Nickel Plate and Cloverleaf systems under state laws was approved by the Interstate Commerce Commission on June 22 and the consolidated company given authority to carry out the necessary financing, including the issue of 327,200 shares of 6 per cent preferred stock and 462,479 shares of common stock in exchange for all of the issued capital stock of the five constituent companies, viz., the New York, Chicago & St. Louis, the Chicago & State Line, the Lake Erie & Western, the Fort Wayne, Cincinnati & Louisville, and the Toledo, St. Louis & Western.

The consolidated company also was authorized to sell from time to time at the best price obtainable, subject to certain conditions, any part of the stock which may be returned to or acquired by the Nickel Plate through contributions. The commission's order provides for a pledge of 8,000 shares of preferred and 7,000 shares of common in substitution for stock of the Chicago & State Line now pledged under the second and improvement mortgage of the present Nickel Plate Company and, subject to conditions, to sell or otherwise dispose of the stock if, and when released from such pledge or from the lien of the mortgage.

The preferred stock may not be sold at less than 90 and the common at not less than 85. The consolidated company is restricted from using any of the proceeds of such stock otherwise than in furtherance of the adjustments incident to consolidation and for other capital purposes. No present necessity is shown for the issue and sale of 131,600 shares of preferred and 133,761 shares of common stock authorized in the consolidation agreement but not required to effect the proposed exchanges. Commissioners Eastman and Esch dissented.

Some discussion of this matter will be found in the Railway Age of June 9, page 1383.

Equipment and Supplies

Locomotives

Rede Sul Minera, Brazil, has ordered 2 Consolidation type locomotives from the Baldwin Locomotive Works.

THE VIRGINIAN has ordered 36 electric motive power units from the American Locomotive Company and the Westinghouse Electric & Manufacturing Company.

Freight Cars

THE ARGENTINE STATE RAILWAYS are inquiring for one air brake instruction car.

THE NEW YORK CENTRAL is inquiring for 750 bolsters to be used in car repair work,

THE CENTRAL NEW JERSEY is asking for prices for making repairs to 300 hopper cars.

THE BIRMINGHAM SOUTHERN is inquiring for 50 composite coal cars of 70 tons' capacity.

THE CHINESE EASTERN RAILWAY is inquiring through the car builders for a dynamometer car.

THE NORTHWESTERN RAILWAY OF BRAZIL is inquiring through the car builders for 50, steel frame stock cars, of 24 tons' capacity.

THE SHELL COMPANY of California (San Francisco), has ordered 60 tank cars of 10,100 gal. capacity with 50-ton trucks from the Pennsylvania Tank Car Company.

Passenger Cars

THE MISSOURI PACIFIC is inquiring for 5 coaches and 10 baggage cars.

THE AMERICAN SHORT LINE RAILROAD ASSOCIATION CONSOLI-DATED PURCHASING AGENCY is in the market for three General Electric gas-electric cars.

Iron and Steel

THE PHILADELPHIA & READING has ordered 10,000 tons of 130-lb. rail from the Bethlehem Steel Company.

THE WESTERN PACIFIC has ordered 187 tons of structural steel for an additional shop building at Sacramento, Cal., from the Union Construction Company.

THE ILLINOIS CENTRAL has ordered 30,000 tons of rail from the Tennessee Coal, Iron & Railroad Company, 20,000 from the Illinois Steel Company and 10,000 from the Inland Steel Company.

Miscellaneous

THE ERIE RAILROAD Co. will receive bids until 12 o'clock noon, July 2, for wrought steel pipe not to exceed 300 net tons. Separate bids are also asked for on the same date for steel sheets consisting of blue annealed, one-pass cold rolled and annealed, galvanized and jacket steel not to exceed 250 net tons.

Signaling

The Boston Elevated has ordered from the Union Switch & Signal Company a complete electro-pneumatic interlocking of 15 levers, to be installed at the east end of the East Boston Tunnel. This double track tunnel has heretofore been used by surface street cars only, but is now being fitted for multiple unit trains and 70 electro-pneumatic automatic stops have been ordered from the Union Company for this service. The construction work will be carried out by the signal department of the railway.

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Supply Trade News

The Barrett Company has moved its Chicago office from Room No. 1200 Otis building to a location at 216 West Monroe stret, Chicago.

The T. W. Snow Construction Company, Chicago, has moved its offices from 512 Chemical building to 720-22 Postal Telegraph building, Chicago.

The National Safety Appliance Company, Chicago, has removed its offices from the Peoples Gas building to 1527 Railway Exchange building. The office of W. T. Tyler will remain in the Peoples Gas building.

P. A. Orton, secretary and treasurer of the Orton & Steinbrenner Co., Chicago, has been promoted to president succeeding H. G. Steinbrenner resigned; H. Mertz, assistant secretary, has been promoted to secretary and sales manager; H. Shaffer, purchasing agent, has been promoted to treasurer and purchasing agent; G. L. Niederst, chief draftsman, has been appointed chief engineer. This company will erect a one-story brick machine shop at Huntington, Ind.

P. A. Orton, secretary and treasurer of the Orton & Steinbrenner Company, Chicago, who has been promoted to president and general manager, was born on January 28, 1873, at

Wilmette, Ill. He received the degree of civil engineering in 1894 and the degree of master of science in 1896, from the University of Cincinnati. During the college year of 1894 he was assistant in the department of mathematics and during 1895 assistant in the engineering department. In 1896 he entered the employ of the King Bridge Company, Cleveland, Ohio, in the estimating and designing department, which position he held until 1899, when he resigned to become engineer Kaltenbach & Griess,



P. A. Orton

consulting engineers at Cleveland. He held this position until 1902, when he was appointed chief engineer for the Interstate Engineering Company, Cleveland, which position he held until 1906, when he resigned to enter into partnership with H. G. Steinbrenner at Chicago. When the Orton & Steinbrenner Company was organized in January, 1908, he became secretary-treasurer and general manager, which position he has held until his recent appointment.

G. L. Niederst, chief draftsman of the Orton & Steinbrenner Company, who has been promoted to chief engineer was born in 1879 at Cleveland, Ohio, and was educated at St. Ignatius College. His business career started in 1900, when he entered the employ of the Cleveland Automatic Tool Machine Company. In 1901 he entered the employ of the McMyler Manufacturing Company in the engineering and inspection department, which position he held until 1905, when he was promoted to chief draftsman. He held this position until 1908, when he resigned to go to Cuba. He returned to the United States in 1910, and was appointed chief draftsman of the Orton & Steinbrenner Company, which position he has held until his recent promotion.

P. E. Carhart, inspecting engineer of the Illinois Steel Company, with headquarters at Chicago, has been retired on account of ill health and has been appointed consulting inspecting engineer with unassigned duties.

H. D. Baker, 525 Woodward avenue, Detroit, Mich., has been appointed representative in the state of Michigan of the Roller-Smith Company, New York. Mr. Baker has been associated with the Roller-Smith Company in various capacities for several years.

H. Mertz, assistant secretary of the Orton & Steinbrenner Company, who has been promoted to secretary and sales manager, was born in 1890 at Chicago and was educated at

the University of Chicago and Armour Institute of Technology. He entered railroad service in 1910 with the Chicago, Milwaukee & St. Paul where he was employed on surveying corps in Montana, Idaho, and Washington. Later he entered the employ of the Illinois Central in the same capacity and in 1912 he returned to the Chicago, Milwaukee & St. Paul as a designer and draftsman in the bridge department, with headquarters at Chicago. In 1914 he resigned to become an engineering draftsman in the engineering de-



H. Mertz

partment of the City of Chicago, which position he held until 1916, when he entered the employ of Fairbanks, Morse & Company, as a designer of reinforced concrete coaling stations. He held this position until March, 1918, when he resigned to enter the employ of Orton & Steinbrenner Company as a draftsman, which position he held until January, 1920, when he was promoted to estimator cost accountant. In December, 1920, he was promoted to assistant secretary, which position he was holding at the time of his recent promotion.

H. Shaffer, purchasing agent and accountant of the Orton & Steinbrenner Company, who has been promoted to treasurer and purchasing agent, was born in 1890 at Chicago and studied

accounting at Northwestern University. His business career started in 1908, when he entered the employ of the Webster Manufacturing Company as an assistant in the cost accounting department, which position he held until 1910, when he was promoted to assistant to the purchasing agent. In 1913 he entered the employ of the Skillin & Richards Manufacturing Company as a cost accountant, but soon returned to the Webster soon Manufacturing pany, where he was placed in charge of purchases. He entered the



H. Shaffer

employ of the Orton & Steinbrenner Company in 1916 as purchasing agent and accountant, which position he held until his recent promotion.

H. C. Jones, vice-president of the Inland Steel Company in charge of the Chicago Heights plant and of advertising, with headquarters at Chicago, has resigned to engage in private business. W. C. Carroll, vice-president, will assume charge of advertising.

William S. Boyce, who has been western manager of the Lundie Engineering Corporation, with office in Chicago, for the past two and one-half years, has resigned to become connected with the sales department of the Railroad Supply Company, with headquarters in the same city.

L. B. Armstrong, assistant secretary of the Lundie Engineering Corporation, has been transferred from the head-quarters at New York to Chicago as western manager with office at 166 West Jackson Boulevard. Mr. Armstrong has had a long experience as a steel and railroad man and is thoroughly acquainted with the supply business.

Lawrence Wilcox, mechanical expert for the Westinghouse Air Brake Company, Chicago, has been transferred to Columbus, Ohio, as a representative of this company and the Westinghouse Traction Brake Company. S. T. Reid, formerly a locomotive engineer on the Michigan Central, has been appointed mechanical expert in Chicago, succeeding Mr. Wilcox.

E. H. Hall, formerly superintendent of the car department of the Chicago-Great Western, with headquarters at Oelwein, Iowa, has been appointed special representative of the Robert M. Lucas Company, Chicago, manufacturers of flexible corrosion-proof cements for railroads for the territory west of the Mississippi river to the Pacific Coast. Mr. Hall's headquarters will be in Chicago.

William A. Frye, formerly air foreman at Kansas City, Mo., of the Missouri Pacific, and S. H. Winslow, formerly with the Baltimore & Ohio in charge of road tests with the dynamometer car, have been appointed service engineers, and C. D. Lentz, formerly chief inspector of the New York Central locomotive repairs at the Baldwin Locomotive Works, has been appointed an inspector of the Franklin Railway Supply Company, Inc., New York City.

The Elk Machine Tool Corporation has taken over the Elk Manufacturing Company of New York City. The new company will continue to manufacture and sell precision tools under the Elkin patents. The new company will be located on July 15 in its new plant at 243 West Seventeenth street, New York City. The company will have direct representatives and branches located in about twenty-five cities. J. C. Elkin, inventor and mechanical engineer, is president of the new company and will have charge of the manufacturing and production.

H. C. Berckes, of New Orleans, La., who has been assistant secretary since 1919 of the Southern Pine Association, was elected secretary-manager of the association to succeed J. E. Rhodes deceased, at a recent meeting of the board of directors. Mr. Berckes was born in New Orleans thirty years ago and has been connected with the Southern Pine Association staff almost since its organization in 1915. The directors, at the meeting, also decided to continue in the future the policy and activities which have been conducted by the association for the industry in the past.

At a meeting of the stockholders of the **Detroit Steel Products Company** on June 25, the authorized issue of \$250,000 of seven per cent cumulative preferred stock and \$5,000,000 of common stock was changed to \$4,000,000 of preferred stock of \$100 par value and 250,000 shares of common stock of no par value. Of the new securities, 142,176 shares of common stock and \$2,132,600 of preferred will be exchanged for \$3,554,000 of common stock now outstanding on the basis of 60 per cent in new preferred and four new common shares for each share of the old common stock.

Trade Publications

The Prevention of Foaming.—An instructive booklet entitled "Foaming, Its Cause and Prevention," written particularly for the henefit of enginemen and firemen, has been issued by the Bird-Archer Company, New York. The text sets forth in simple terms the principle on which Bird-Archer anti-foaming compound operates to prevent foaming and explains clearly the reasons for the simple instructions given for its successful use. Copies will be furnished for distribution to enginemen and firemen on request.

Railway Construction

CANADIAN NATIONAL.—The Canadian Government has presented a bill in Parliament calling for expenditures for the building of additional mileage for the Canadian National as follows:

Sunny Brae to Guysboro, N. S	\$3,500,000
Meductic, N. B., to U. S. boundary	1,260,000
Long Lac to Nakima, Ont	1.944.000
Thunder Hill Branch to Prince Albert Branch, Sask	1.656,000
Bengough Branch past Fife Lake, Sask	
Turtleford Branch to Near Hafford	
Dunblane Branch to Mawrer	
Alliance Branch, Alberta	
Hanna Branch to Warden, Alberta	1,445,000
Loverna Branch to Westerly, Alta	1.362,000
Okanagan Branch to Kelowna and Lumly	

CANADIAN PACIFIC.—This company plans the construction of a passenger terminal and office building at Victoria, B. C., for the accommodation of steamship traffic and steamship offices. The cost of the building is estimated at \$200,000.

Denver & Rio Grande Western.—This company will construct a new freight yard at Alamosa, Colo., at a cost of \$68,000. A new passenger station to cost \$36,000 will be constructed at Walsenburg, Colo., and a station costing \$13,000 will be constructed at Ignacio, Colo.

FORT MYERS SOUTHERN.—The Interstate Commerce Commission has issued a certificate authorizing the construction of a line from a point near Fort Myers, Fla., to a point near Bonita Springs, about 22 miles. The company's stock is owned by the Atlantic Coast Line.

Illinois Central.—This company has awarded a contract to J. B. Lynch, Monmouth, Ill., for the construction of seven miles of second track from Springfield, Ill., to Barclay and a double track bridge across the Sangamon river. Bids will be closed on July 12 for the construction of the new single-track line from Edgewood, Ill., to Fulton, Ky., reported in the Railway Age of December 30, 1922.

National Railways of Mexico.—This company plans the construction of a new line, approximately 87 miles long, from Beristain, Mexico, to Tuxtan. The cost of the construction is estimated at approximately \$4,000,000.

Northern Pacific.—This company has been authorized by the Interstate Commerce Commission to construct a branch line approximately 30 miles long in Rosebud county, Mont., to the company's coal fields. The project, which was reported in the Railway Age of February 17, will cost approximately \$1,900,000.

Oregon Short Line.—This company has been authorized by the Interstate Commerce Commission to proceed with the construction of a branch line $2\frac{1}{2}$ miles long at Nampa, Idaho, reported in the Railway Age of June 16.

Oregon Short Line.—This company will soon call for bids for the construction of a secondary main line from Orchard, Idaho, to Boise, as reported in the Railway Age of March 3.

SOUTHERN PACIFIC.—This company plans the construction of a new passenger station at Ogden, Utah, to cost approximately \$150,000.

THE TRAFFIC CLUB of Cleveland, Ohio, has elected F. P. Barr, general traffic manager of the Wheeling & Lake Erie, president; A. Z. Baker, traffic manager of the Cleveland Provision Company, first vice-president; H. R. Rogers, traffic manager of the Cleveland & Buffalo Transit Company, second vice-president; R. A. Morman, secretary of the Doyle & Waltz Printing Company, secretary, and M. B. Schoeneweg, traffic manager of the Bourne-Fuller Company, treasurer.

A DIFFERENTIAL RATE on wheat moving from Wichita, Kan., to gulf ports is to be asked of the Interstate Commerce Commission by the Kansas City, Mexico & Orient. If such a differential is granted, a substantial increase in grain traffic on the Orient is expected. The Santa Fe and the Rock Island recently approved a reduction in rate of one-half cent a hundred pounds on wheat shipped from Kansas City to Galveston, via the Orient as an intermediate carrier from Wichita to the southern junctions with the former roads.

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Railway Financial News

BALTIMORE & OHIO.—Dividends.—The directors at a meeting in New York on Wednesday decided not to resume dividend payments on the common stock at this time, although a statement issued after the meeting was to the effect that the result of the first six months' operations when taken in connection with the present outlook would no doubt have justified resumption of dividends to common stockholders out of earnings of that period. The directors said:

After giving careful consideration to all facts and conditions, the board decided unanimously that the real interest of the common shareholders would be best served at the present time by using the available surplus resulting from the hrst six months' operations to anticipate the final payment of \$1,-750,000 and to thus complete the full appropriation required under the \$35,000,000 loan, and to provide also out of the half year's income for the cash payment, approximately \$5,000,000, required in connection with the new equipment ordered.

It will be remembered that the loan of July 1, 1919, above referred to, provided for the appropriation of \$3,500,000 annually out of income for capital expenditures before the declaration of dividends until the sum of \$17,500,000 have been so appropriated.

expenditures before the declaration of dividends until the sum of \$17,500,000 have been so appropriated.

This course will enable the company to complete the appropriation of \$17,500,000 for capital expenditures as required under the terms of the \$35,000,000 loan, and also to complete financing of more than \$22,000,000 or new equipment. The company will, therefore, enter the last half of the year with no charges against the net income of the common stock, except the fixed charges for that particular period.

The regular semi-annual dividend of 2 per cent upon the preferred stock for the six months ending June 30, 1923, was declared payable September 1, 1923, to stockholders of record at the close of business July 14, 1923.

Boston & Maine.—Payment of Guaranty.—Payment of \$100,000 in final settlement of the guaranty under Section 209 of the Transportation Act has been certified to the Treasury by the Interstate Commerce Commission.

CAROLINA, CLINCHFIELD & OHIO.—Lease to L. & N. Approved .-The stockholders at a special meeting approved the 999-year lease to the Louisville & Nashville. See also Louisville & Nashville.

CENTRAL OF GEORGIA.—Bonds.—This company has been authorized to assume obligation and liability for \$1,000,000 of first mortgage 5 per cent bonds.

CHICAGO GREAT WESTERN.—Annual Report.—The annual report for the year ended December 31, 1922, shows a net income of \$432,770 as compared with a net deficit of \$1,095,295 in 1921. A summary of the company's income 1921 and 1922 follows:

	1922	1921 (Note 1)	Increase or Decrease
Railway operating revenues	\$24,224,789	\$24,228,611	\$3,822
Railway operating expenses	21,274,235	21,426,165	-151.929
Revenues over expenses	2,950,553	2,802,446	158,107
Taxes	985,700	917,804	67,896
Uncollectible railway revenues	2,954	1.753	1,201
Railway operating income	1,961,900	1,882,889	79,011
Equipment rents-net debit	894,769	766,329	128,439
Joint facility rents-net debit	801,944	806,572	-4,628
Net railway operating income	265,186	309,988	-44,801
Other income	1,957,141	. 3/6,552	1,580,589
Gross income	2,222,328	686,540	1,535,789
Deductions:			
Interest on funded debt	1,242,877	1,214,907	27,970
Interest accrued on bonds of M. C.			
& Ft. D. R. R. Co. (2)	440,000	480,000	-40,000
Other deductions	106,681	86,927	19,754
Total deductions	1,789,558	1,781,834	7,724
Net income (surplus)		Def. 1,095,295	1,528,065
(1) Includes guaranty period lap-		N'1	1

(2) This is the amount accrued January to November, inclusive. The Chicago Great Western will acquire the coupons representing this and all prior unpaid interest as of December 1, 1922, in exchange for its securities.

CHICAGO & NORTH WESTERN .-- Equipment Trust Issue company has asked authority to assume obligation and liability for \$4,755,000 of 7 per cent equipment trust certificates to be sold to Kuhn, Loeb & Co. at 96.50 per cent and the proceeds applied to the purchase of 50 locomotives, 140 passenger cars, 800 coal cars, 200 flat cars, 800 ore cars, 40 tank cars at an estimated cost totaling \$6,353,000. The certificates will be dated June 1, 1923, and will mature in 15 annual installments.

CHICAGO, PEORIA & St. Louis.—Sale Ordered.—The sale of this road either in its entirety or in sections has been ordered by the Circuit Court at Springfield, Ill. The decree of the court orders that the road shall be offered for sale under either

plan in order to secure the greatest possible purchase price, but no one section may be sold and the other sections left unsold.

CHICAGO, ROCK ISLAND & PACIFIC.—Authorized to Issue Bonds.—This company was authorized by the Interstate Commerce Commission Wednesday to issue \$7,000,000 of 3-year 5½ per cent secured gold notes at not less than 971/2 per cent of par and accrued interest and to pledge \$11,666,000 of first and refunding mortgage 4 per cent gold bonds as security.

CUBA RAILROAD.—Capitalization Change.—The stockholders at a special meeting on Wednesday approved the proposal of the directors to change the authorized 200,000 shares of \$100 par value common stock to 1,000,000 shares of no par value common

DENVER & RIO GRANDE WESTERN .- Receiver Resigns .- United States District Court Judge Foster Symes, at Denver, Col., has confirmed reports that Joseph H. Young, receiver of the Denver & Rio Grande Western, has submitted his resignation to the court. Judge Symes indicated that he probably would delay action on the resignation indefinitely.

FLORIDA EAST COAST.—Annual Report.—The annual report for the year ended December 31, 1922, shows a net income of \$1,991,872 as compared with \$766,705 in 1921. A selection of the principal items in the income account follows:

principal rems in the meone a	1922	1921	Increase Or Decrease
Freight revenue	\$7,998,757	\$7,828,835	\$169,921
Passenger revenue	3,771,812	4,010,328	-238,517
Total operating revenues	13,427,625	13,579,109	-151,484
Maintenance of way and structures.	2,163,518	3.002.692	-839,174
Maintenance of equipment	2,468,414	2,518,669	50,255
Traffic expenses	161,659	156,683	4,976
Transportation expenses	4,200,801	5,112,880	-912,079
General expenses	337,328	335,891	1,437
Total operating expenses	9,431,825	11,218,635	-1,786,810
Net revenue from railway opera-	-,,	,,	-,,
tions	3,995,800	2,360,474	1,635,325
Railway tax accruals	769.374	805,448	-36,074
Railway operating income	3,220,341	1,555,374	1,664,967
Total non-operating income	96,991	442,790	-345,798
Gross income	3,317,332	1,998,163	1,319,169
Total deductions from gross income.	1,325,460	1,231,458	94,002
Net income	1,991,872	766,705	1,225,167

GREAT NORTHERN.—Bonds.—This company has been authorized by the Interstate Commerce Commission Friday to procure authentication and delivery to its treasury of \$60,000,000 of general mortgage 5 per cent gold bonds.

LOUISVILLE & NASHVILLE.—C. C. & O. Lease Approved. The stockholders at a special meeting approved the proposal for a joint lease of a Carolina, Clinchfield & Ohio with the Atlantic Coast Line, and voted to take over the property as soon as the lease is approved by the Interstate Commerce Commission.

The rental is to commence January 1, 1925, and for three years thereafter to be a sum equivalent to a dividend of 3 per cent on the \$25,000,000 stock, or \$750,000 annually. For ten years beginning 1928 it shall be 4 per cent, or \$1,000,000 a year. These sums are to be paid quarterly on the first day of January, April, July and October.

See also article entitled "C. C. & O. Leased by L. & N." in Railway Age of May 26, 1923, page 1268.

NEW YORK, CHICAGO & St. Louis.—Dividends.—This company has declared a dividend of 3 per cent on the new common stock and a dividend of 3 per cent on the new cumulative preferred, both payable July 15 to stock of record July 7. This preferred dividend represents the accumulation from January 1, 1923. The dividends are payable to stockholders of record of full shares of the new company and to certificates of deposit holders of the constituent companies.

Southwestern.—Application to Purchase.—See PACIFIC Southern Pacific.

SAN FRANCISCO-SACRAMENTO.—Asks Authority to Abandon Branch.—This company has applied to the Interstate Commerce Commission for a certificate to abandon its San Ramon branch operating between Saranat and Diablo in Contra Costa county, Calif. The applicant is an electric railroad.

SOUTHERN PACIFIC.—Asks Authority to Purchase Pacific Southwestern.-This company has applied for authority to purchase the Pacific Southwestern, which previously had been authorized by the commission to build a line 4 miles in length from 30

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Lompoc to White Hills, Santa Barbara county, Calif. Pending completion of the line the Southern Pacific will advance \$100,000 to the Pacific company, which is approximately one-half the cost of construction, with arrangements to pay for the balance from traffic revenues after the line is in operation.

TALLULAH FALLS RAILWAY.—Receivership.—Joseph F. Gray, formerly a member of the Georgia Railroad Commission, has been named receiver for this company by Judge J. B. Jones, of the Northeastern Circuit in the Superior Court of Habersham county, Ga. The petition for the receivership was presented by Attorneys Charters, Wheeler and Lilly, of Gainesville, Ga., on behalf of the Southern Railway, the largest creditor, acting for itself and other creditors. The petition alleges that the Tallulah Falls owes the Southern \$1,155,472, this amount representing unpaid interest on the bonded debt of the Tallulah Falls and cash advances made to it by the Southern for the payment of taxes and current operating expenses. The Tallulah Falls extends from Cornelia, Ga., on the main line of the Southern, 58 miles to Franklin, N. C. The petition shows that the Tallulah Falls has outstanding \$1,519,000 of five per cent bonds, issued March 1, 1909, on which no interest has ever been paid and that for several years the road has not earned its operating expenses.

During the 26 months of federal control the Tallulah Falls lost
\$115,288, while from March 1, 1920, to April 30, 1923, its deficit has amounted to \$207,106

TONOPAH & TIDEWATER.—Treasury Payment.—The Interstate Commerce Commission has certified payment of \$70,998 to this company for reimbursement of deficits incurred during the period of federal control.

WHEELING & LAKE ERIE.—Annual Report.—The annual report for the year ended December 31, 1922, issued this week, shows a net corporate income of \$206,267 as compared with \$670,129 in 1921. The income account follows:

Railway operating revenues	\$13,153,888 11,146,707
Net revenue from railway operations. Taxes and uncollectible railway revenue. Operating income Non-operatting income.	\$2,007,181 1,230,590 776,591 160,001
Gross income	\$936,592
Balance of income received in final settlement with U. S. R. A. for use of property during federal control	1,056,035
Deductions:	\$1,992,627
Equipment rents—Net.	1,786,360
Corporate income for the year	\$206,267

Railroad Administration Settlements

The United States Railroad Administration reports the following final settlements, and has paid out and received from the several roads the following amounts:

Union Terminal Company	Railroad	\$434,715.51 45,000.00
Director General	s Railway Company of Texas, paid	3,600,000.00
	SHORT LINES	
Cimarron & Northwestern	Railway Co	2,000.00

Trend of Railway Stock and Bond Prices

		June 26	Last Week	Last Year
	price of 20 representative rail- stocks		63.73	64.91
Average	price of 20 representative rail-		83.25	

Dividends Declared

Atchison, Topeka & Santa Fe.—Common, \$1.50, quarterly, payable September 1 to holders of record July 27.

El Paso & Southwestern.—\$1.50, quarterly, payable July 2 to holders of record June 25, Illimois Central.—Common, \$1.75, quarterly; preferred, \$3.00, semi-annually; both payable September 1 to holders of record August 2.

Norfolk & Western.—Common, \$1.75, quarterly, payable September 19 to holders of record August 31. Adjustment preferred, \$1.00, payable August 18 to holders of record July 31.

Northern Facific.—\$1.25, quarterly, payable August 1 to holders of record July 2.

Northern Facine. \$\int_{1.23}\$, quantity, pulling 2.

Reading Company.—Common, 2 per cent, payable August 9 to holders of record July 17; first preferred, 1 per cent, quarterly, payable September 13 to holders of record August 27.

Railway Officers

Executive

B. O. Johnson, whose promotion to assistant to the vice-president of the Northern Pacific, with headquarters at St. Paul, Minn., was reported in the Railway Age of June 9,



B. O. Johnson

was born on May 25, 1878, at Winchester, Mass. He graduated from the Worcester Polytechnic Institute in 1900 and entered railway service in July of that year as a track laborer on the Northern Pacific. During 1901 and 1902 he was employed in various positions in the engineering department and in 1903 was promoted to roadmaster. He was appointed roadmaster on the Atchison, Topeka & Santa Fe in 1905 and a year later returned to the Northern Pacific as trainmaster. He was promoted to superintendent of the Yellow-

stone division in 1909, being transferred subsequently to the Fargo and Montana divisions. In 1917 he went to Russia with the army of occupation as a major in the Russia Railway Service Corps. Mr. Johnson left military service in 1922 and was appointed assistant to the vice-president of the Northern Pacific, with headquarters at St. Paul, on May 1, 1923.

A. M. Burt, whose promotion to assistant vice-president of the Northern Pacific, with headquarters at St. Paul, Minn., was reported in the Railway Age of June 9, was born on May 1, 1866, at Syracuse, N. Y. He entered



A. M. Burt

railway service in April, 1885, in the engineering department of the Colorado Midland and until December, 1896, held various positions from rodman to division engineer on that road, the Northern Pacific, the Wisconsin Central, the Adirondack & St. Lawrence and the Chicago & North Western. He was appointed super-visor of bridges and buildings on the Northern Pacific in January, 1897, and was promoted to assistant superintendent, with headquarters at Grand Forks, North Dakota, on March 1,

1902. From October 10, 1903, to January 1, 1914, Mr. Burt served as division superintendent successively at Jamestown, N. Dak., Fargo, N. Dak., Missoula, Mont., and Spokane, Wash. He was promoted to chief engineer maintenance of way on January 1, 1914, and on April 1, 1918, was promoted to acting general manager. He was appointed assistant general manager on August 1, 1918, and held this position until June 1, 1919, when he was appointed assistant director, division of operation of the United States Railroad Administration, with headquarters at Washington, D. C. On March 1, 1920, Mr. Burt was appointed assistant to the vice-president of the Northern Pacific, with headquarters at St. Paul, Minn., and was serving in this capacity at the time of his recent promotion to assistant vice-president, with headquarters at St. Paul.

Joseph F. Gray, formerly a member of the Georgia railroad commission, has been named as receiver for the Tallulah Falls Railway Company.

J. H. Young, receiver for the Denver & Rio Grande Western with headquarters at Denver, Colo., has submitted his resignation to the district court at Denver. The court has delayed action on the resignation. J. Russell, chief operating officer, has also resigned.

New Officers for the Nickel Plate

The following officers have been announced for the recently consolidated New York, Chicago & St. Louis:

O. P. VAN SWERINGEN	Chairman of board
J. J. Bernet	President
M. J. VAN SWERINGEN	Vice-president
W. L. Ross	Vice-president, operation
C. E. DENNEY	
W. A. ColstonVice-	president and general counsel
George S. Ross	
C. C. COLLISTER	
L. B. WILLIAMS	
R. G. EBERLY	
L. A. Bell	Controller

Financial, Legal and Accounting

C. W. Jones, deputy treasurer of the Atchison, Topeka & Santa Fe, Coast lines, with headquarters at Los Angeles, Cal., has been promoted to assistant treasurer and assistant secretary, with the same headquarters, succeeding G. Holterhoff, deceased.

Operating

Hadley Baldwin, assistant chief engineer of the Cleveland, Cincinnati, Chicago & St. Louis with headquarters at Cincinnati, Ohio, has been promoted to assistant to the general manager with the same headquarters, succeeding L. S. Rose, promoted.

H. B. Coburn, trainmaster of the Second division of the Union Pacific, with headquarters at La Grande, Ore., has been promoted to assistant superintendent of the Second division, with the same headquarters, the position of trainmaster having been abolished. W. S. Law has been appointed trainmaster of the second sub-division, with headquarters at Grand Island, Neb., succeeding J. M. Guild, who has been transferred to Laramie, Wyo.

Porter Allen, division engineer of the Lake division of the Pennsylvania, with headquarters at Cleveland, Ohio, has been promoted to superintendent of the South Bend division, with headquarters at Logansport, Ind. Mr. Allen was born on August 15, 1880, at Williamsport, Pa., and graduated from Lafayette College in 1902. He entered railway service on June 23, of the latter year as a rodman on the Pennsylvania, with headquarters at Williamsport, Pa., and was engaged in this work until March, 1906, when he was appointed assistant supervisor. He was promoted to supervisor in August, 1911, and in March, 1920, was promoted to division engineer of the Lake division, with headquarters at Cleveland. Mr. Allen held this position until the time of his recent promotion to superintendent of the South Bend division.

Engineering, Maintenance of Way and Signaling

R. D. Brown, roadmaster on the Atchison, Topeka & Santa Fe, with headquarters at Kingman, Ariz., has been appointed engineer in charge of construction of the new National Railways of Mexico line from Mexicali to the Gulf of California.

W. C. Borchert, whose appointment as chief engineer of the Louisiana Railway & Navigation Company of Texas, with headquarters at Greenville, Tex., was reported in the Railway Age of June 9, was born on February 24, 1894, at

Kyle, Tex. He was graduated from the Agricultural and Mining College of Texas in 1913, and entered railway service in June of that year as a rodman on the Southern Pacific. He was subsequently engaged as draftsman and instrumentman and in December, 1914, was promoted to assistant engineer. He was promoted to assistant division superintendent in March, 1917, and was appointed assistant engineer on the Missouri, Kansas & Texas in September, 1919. Mr. Borchert was appointed general foreman in March, 1920, and in September of that year was promoted to district engineer. He was appointed roadmaster in December, 1921, but was reappointed district engineer in May, 1922. He was holding this position at the time of his recent appointment as chief engineer of the Louisiana Railway & Navigation Company of Texas, with headquarters at Greenville, Tex.

Carroll R. Harding, whose appointment as consulting engineer of the Southern Pacific with headquarters in New York was announced in the Railway Age of June 9, page 1398, was

Hallowell, born at Maine, July 4, 1888, and was educated at Baltimore Polytechnic Institute and at Cornell University, from which institution he received the degree of Civil Engineer in 1910. For three years thereafter he was employed by the American Bridge Company on surveys in Alaska, Michigan and Costa Rica. He entered railway service on November 1, 1913, as a draftsman in the office of the consulting engineer of the Southern Pacific at New York. In February of the following year he was



C. R. Harding

promoted to chief draftsman and in 1916 he became assistant consulting engineer, in which position he was serving at the time of his recent promotion to take the place of John D. Isaacs, retired.

Mechanical

Owen J. Brown, whose appointment as superintendent of fuel service of the Boston & Maine was announced in the Railway Age of June 16, page 1506, was born on June 5, 1886,

at Peoria, Ill. He entered railway service with the Illinois Valley Belt (the operation of which has since been discontinued) as a fireman in 1906 and a year later became a yard clerk. In 1911 he entered the service of the Wabash as a clerk in the company's general offices and the following year was appointed fuel inspector. Three years later he was promoted to fuel account ant and in 1916 he entered the service of the Boston & Maine as inspector of fuel service, which position he was holding at the time of



O. J. Brown

his recent promotion. Mr. Brown had experience in coal mining before he entered railway service. He is a member of the executive committee of the International Railway Fuel Association.

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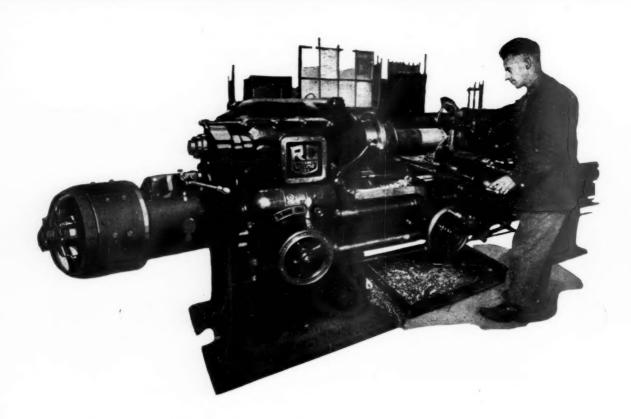
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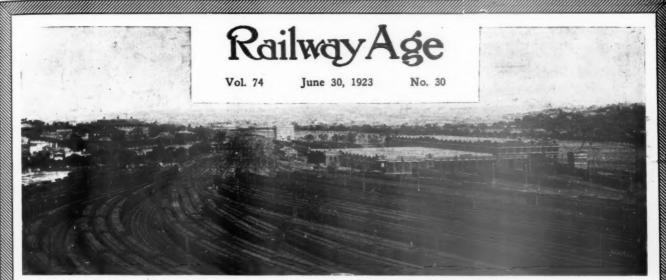


Bulletin 1,301

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Published every Saturday and daily eight times in June by the

Simmons-Boardman Publishing Company, 30 Church Street, New York

EDWARD A. SIMMONS, President L. B. SHERMAN, Vice-Pres.

HENRY LEE, Vice-Pres. & Treas. SAMUEL O. DUNN, Vice-Pres.

C. R. MILLS, Vice-Pres. Roy V. WRIGHT, Sec'y.

CHICAGO: 608 South Dearborn St.

CINCINNATI: 101 East 4th St.

CLEVELAND: 4300 Euclid Ave. WASHINGTON: 425 G. Street N. W.

LONDON, England: 34, Victoria St., Westminster, S. W. I.
Cable Address: Urasigmee, London
N. W. . . NEW ORLEANS: 927 Canal St.

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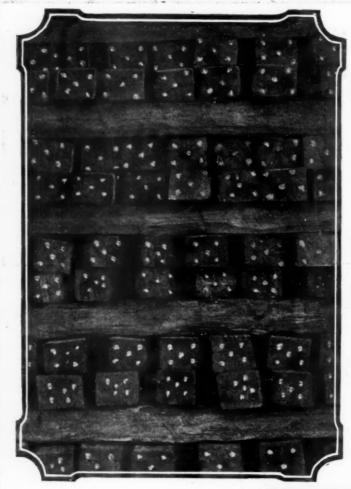
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cents each. WE GUARANTEE, that of this issue, 9,700 copies were printed, that 8,664 were net paid circulations, 11 were provided for news company sales, 350 were mailed to advertisers, 221 were mailed to employees and correspondents and 454 were provided for new subscriptions, counter sales, samples, copies lost in the mail and office use, that the total copies printed this year to date were 255,300, an average of 9,819 copies a week.

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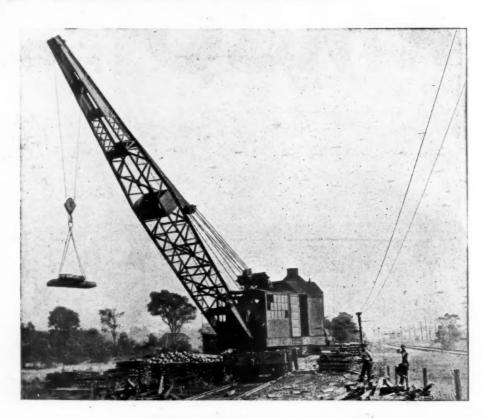
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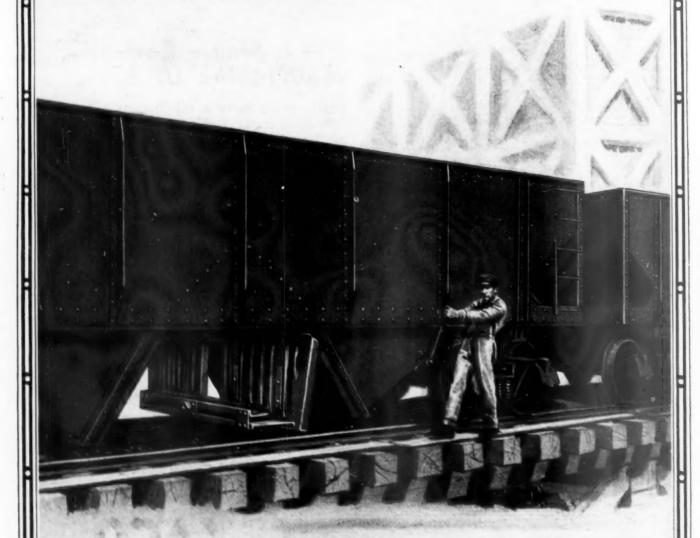
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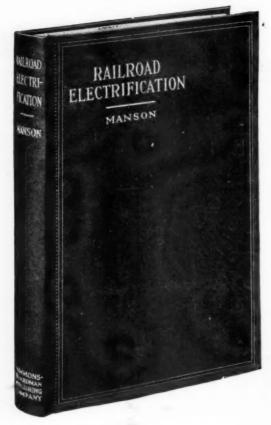
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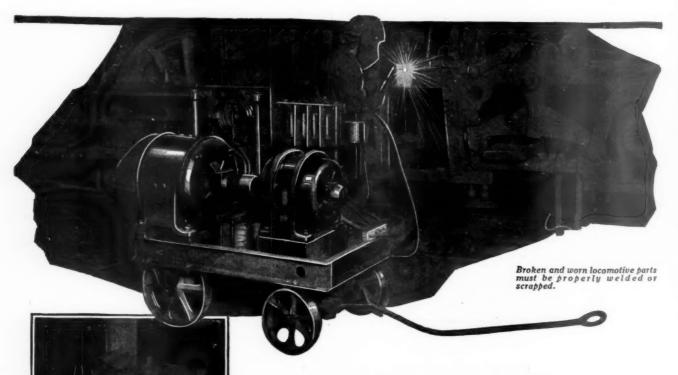
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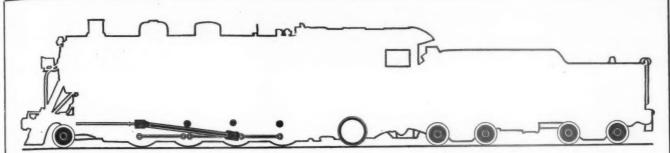
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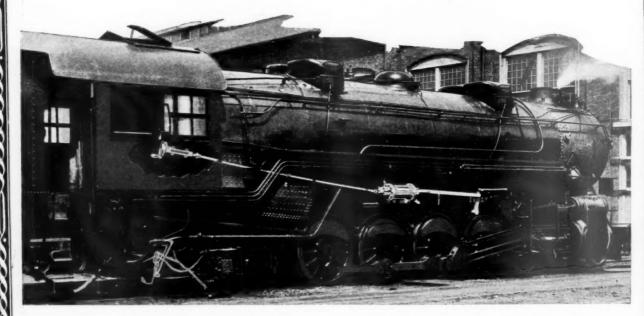
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various lighting and the terms.

Materials Section—Includes American Railway Association specifications relating to materials such as metals, rivets, castings, paints, lumber, etc., used in car construction.

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ditchers, ballast cars and dynamometer cars, etc.
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also included.
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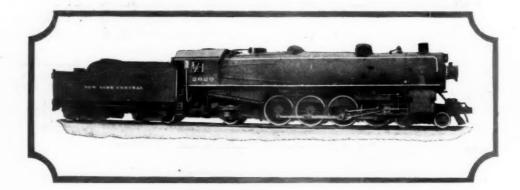
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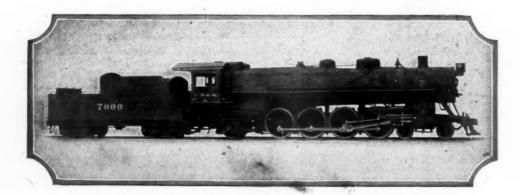
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There are other reasons—Parkesburg reasons—why Parkesburg Charcoal Iron Boiler Tubes last longer. These refinements of iron-making practice, diligent inspection and tubemaking skill are best appreciated by a visit to the Parkesburg mill. If you can't come to the plant, write, and we'll try to explain by letter and booklet.



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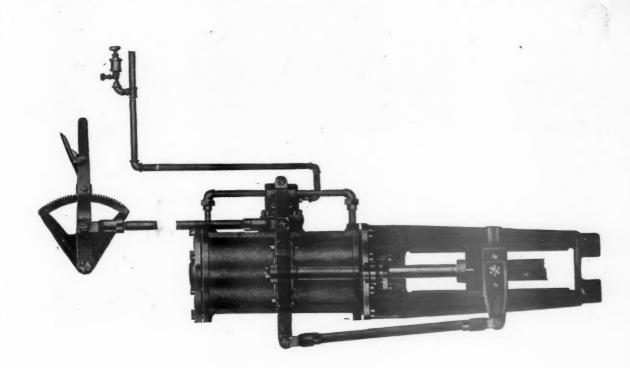
Special significance attaches to these installations on the Lehigh, for the operating economy of the Elvin was determined on this road by a former order, the performance of which quite naturally influenced the last one.



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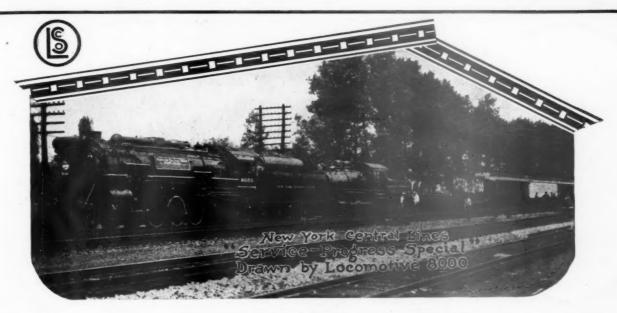
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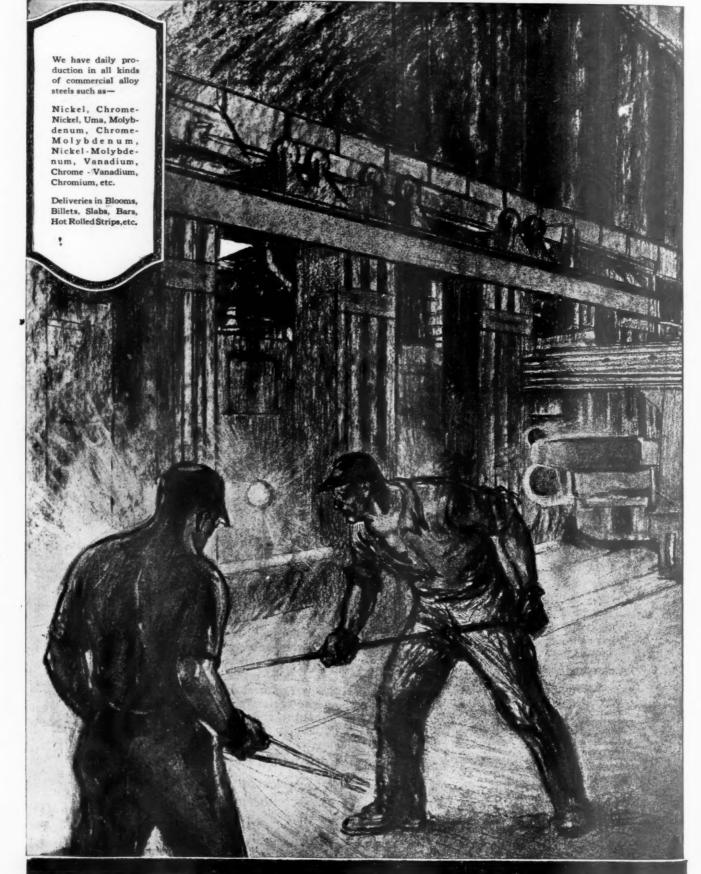
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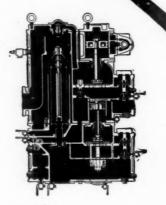
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Surprisingly Simple.



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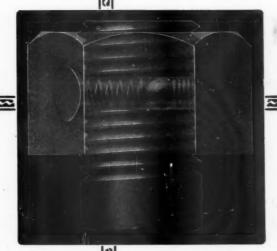


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NOTICEABLE reduction in stack loss emphasizes the fuel economy of the DU PONT SIMPLEX STOKER.

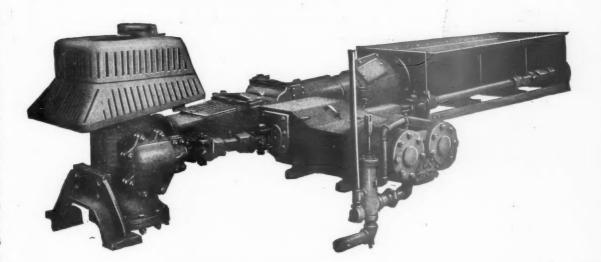
Stand on the tender of a locomotive, fired either by hand or with another stoker, hauling a heavy train and notice the stack loss.

In the same manner, compare the stack loss of a similar locomotive equipped with the DU PONT SIMPLEX STOKER.

This comparison is a positive demonstration of DU PONT SIMPLEX STOKER fuel economy.

STANDARD STOKER COMPANY, INC.

Grand Central Terminal, New York, N. Y.
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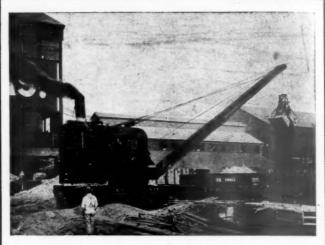
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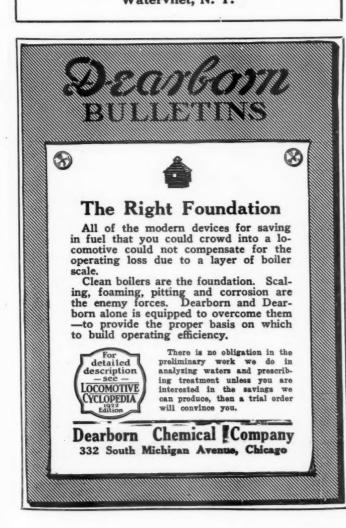
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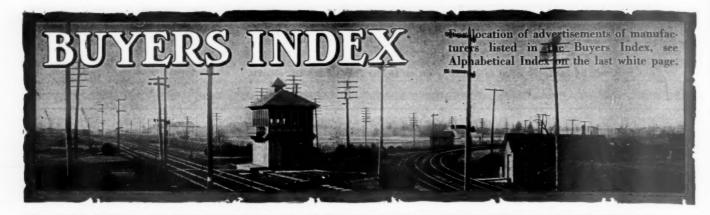
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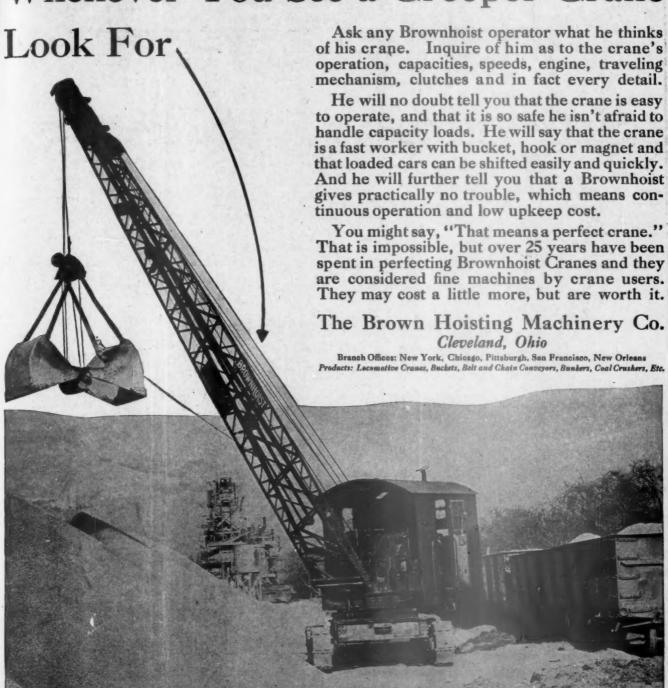
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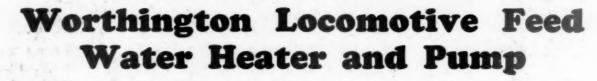
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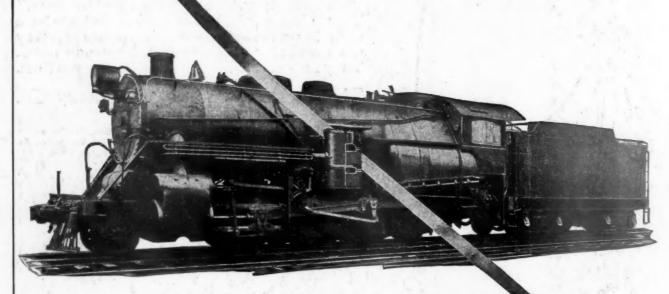


BROWNHOIST

MATERIAL HANDLING MACHINERY

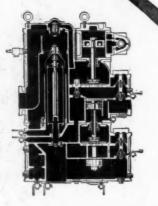


Surprisingly Simple.



The diagram at the right shows every working part of the Worthington Locomotive Feed Water Heater and Pump. It has often been said that this is one of the simplest major devices used on a modern locomotive. The chart proves this to be absolutely true.





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